THE LANCET.

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XX. OF VOL. I., 1913.
No. 4681. Vol. CLXXXIV. LONDON, SATURDAY, MAY 17, 1913. Pp. 160—Price 6d.

ROYAL SOCIETY OF MEDICINE.

1, WIMPOLE STREET.

For DIARY of MEETINGS see page 1432.

THE FOOD FACTOR in DISEASE, including the Pathology and Treatment of Bilious Attacks, the Paroxysmal Neuroses (Migraine, Asthma, Angina Pectoris, &c.), Gout, High Blood-pressure, &c. By FRANCIS HARE, M.D., Consulting Physician, Brisbane Hospital. For abstract see THE LANCET review—Feb. 17th, 1906, pp. 453 to 455.—Longmans, Green & Co. In two volumes. Price 30s. net.

NOW IN PREPARATION.

NON-OPERATIVE TREATMENT OF ENLARGED PROSTATE WITH THE WAVE CURRENT.

By L. ELIOT CREASY, M.R.C.S., L.R.C.P.

James Nisbet & Co., Berners-street, London.

Now Ready. Pp. xi. + 269. With 3 Charts. 5s. net.

ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

THE TECHNIQUE AND RESULTS OF RADIUM-THERAPY in MALIGNANT DISEASE. By H. DOMINICI, M.D., and A. A. WARDEN, M.D., Paris. Reprint of Demonstration given at 78th Annual Meeting of British Medical Association, London, July, 1910, with additional Plates and more recent Notes, March, 1912.
London: J. & A. Churchill. 1912. Price 2s. net.

Third Edition. With 126 Illustrations. Price 14s. net.

DISEASES of the NOSE and THROAT.
By HERBERT TILLEY, B.S., F.R.C.S.,
Surgeon Ear & Throat Department, University College Hospital, London.
LANCET:—"It is clearly written, well illustrated, and readable, and is a book to which students and practitioners of medicine may turn with confidence."
BRITISH JOURNAL OF TUBERCULOSIS:—"An ideal manual for the practitioner..... The sections dealing with affections of the nose and its accessory cavities are particularly excellent and admirably illustrated. Tuberculosis of the larynx (section) is one of the best of its kind ever written."
H. K. Lewis, 136, Gower-street, London.

By J. S. KELLETT SMITH, F.R.C.S.Eng.

LATERAL SPINAL CURVATURE AND FLAT FOOT, AND THEIR TREATMENT BY EXERCISES.
"We may say at once that he has carried out his idea admirably..... This is eminently a book suited for the general practitioner wishful to treat the slighter forms of scoliosis or pes planus."—LANCET.
5s. 6d. net. 82 Illustrations. Bristol: J. Wright & Sons, Ltd.

By FREDERICK J. McCANN, M.D.Edin., F.R.C.S.Eng., Surgeon, Samaritan Free Hospital for Women, London, N.W.

CANCER OF THE WOMB: ITS SYMPTOMS, DIAGNOSIS, PROGNOSIS, AND TREATMENT. Fully illustrated. 20s. net.
LIVERPOOL MEDICO-CHIRURGICAL JOURNAL.—"Cancer of the Womb, by F. J. McCann, is a book that can be recommended alike to the general practitioner and the specialist. Written in a fluent manner, it embodies the ripe experience of a renowned operator, trained observer, and patient investigator."
EDINBURGH MEDICAL JOURNAL.—"The book is one of very great merit; it will be read with interest both by the specialist and general practitioner as an authoritative exposition of the important subject with which it deals."
PRACTITIONER.—"Dr. McCann has produced a valuable work which deserves to be widely known."
ST. BARTHOLOMEW'S HOSPITAL JOURNAL.—"The plates are excellent. This is a book we can thoroughly recommend."
London: Henry Frowde and Hodder & Stoughton.

BY C. MANSELL MOULLIN, M.D. Oxon., F.R.C.S., Consulting Surgeon to the London Hospital.
Fourth Edition.
ENLARGEMENT of the PROSTATE. Price 6s.
THE BIOLOGY OF TUMOURS, BRADSHAW LECTURE, 1912. Price 2s. net.
London: H. K. Lewis, 136, Gower-street.

WHEN to OPERATE in INFLAMMATION of the APPENDIX.
Third Edition now ready. Price 2s. 6d.
London: J. Bale & Danielsson Ltd., 83-89, Gt. Titchfield-street.

JUST ISSUED.

THE MODERN HOSPITAL:
ITS INSPIRATION. ITS ARCHITECTURE.
ITS EQUIPMENT. ITS OPERATION.

See Saunders' Advertisement on Page 5

NERVES AND THE NERVOUS—Includes a Chapter on Psycho-Therapy.—By EDWIN J. ASH, M.D.Lond.
NURSING MIRROR says:—"We can strongly recommend....."
New Ed., 3s. 6d. net. Mills & Boon, 49 Rupert Street, W.

BOOKS BY SYDNEY STEPHENSON, D.O. (Oxon.)
EYE-STRAIN IN EVERYDAY PRACTICE.
1913. Price 3s. 6d. net.
The Ophthalmoscope Press, 24-26, Thayer-street, W.

OPHTHALMIC NURSING.
Third edition. 1912. Price 3s. 6d. net.
The Scientific Press, Southampton-street, Strand, W.C.

HEALTH RESORTS of the BRITISH ISLANDS. With Maps, Illustrations, and Chapters on Climates, Baths, Sanatoria, &c. Price 7s. 6d. net.
By Many Writers. Edited by NEVILLE WOOD, M.D., M.R.C.P.
London: Hodder & Stoughton.

THE "LONDON" SERIES OF CLINICAL AND LABORATORY HANDBOOKS.
Now Ready.

FIBROIDS of the UTERUS: their PATHOLOGY and TREATMENT.
By SIR JOHN BLAND-SUTTON, F.R.C.S.Eng., Surgeon to the Middlesex Hospital.
Crown 8vo. Pp. 240 + vi. With 39 Illustrations. Price 4s. 6d. net.
Science Reviews, Ltd., 36-38, Whitefriars-street, E.C.

BY E. HURRY FENWICK, F.R.C.S.,
Professor of Urology at the London Hospital,
President Second Congress of International Association of Urology.

With 80 Plates and 15 Text-Figures. 10s. 6d. net.
THE VALUE of RADIOGRAPHY in the DIAGNOSIS & TREATMENT of URINARY STONE.
A Study in Clinical and Operative Surgery.
London: J. & A. Churchill, 7, Great Marlborough-street.

Third Edition (1912).
SAVILL'S CLINICAL MEDICINE.
"We confidently recommend Dr. Savill's book as a helpful and practical work."—THE LANCET.
"Thoroughly up to date."—BRIT. MED. JOURNAL, 1912.
"The wonderful accomplishment of a laborious task on pioneer lines."—ST. MARY'S HOSP. GAZ. Arnold, 41, Maddox-st.
By the same author.
LECTURES ON NEURASTHENIA. (Fourth Edition.)
"We know of no better guide to its diagnosis and treatment than Dr. Savill's masterly treatise."—MED. PRESS.
LECTURES ON HYSTERIA. Glaisher, Wigmore-st.

LIBRARY OF CONGRESS MAY 27

17 hours from London
8 hours from Paris
2 hours from Geneva

AIX-LES-BAINS

SAVOY, FRANCE.

ETABLISSEMENT THERMAL (Open all the Year)

THESE famous BATHS date from the **Roman Occupation**, and are resorted to for the treatment of **GOUT, RHEUMATISM, ARTHRITIS, MUSCULAR RHEUMATISM,** LUMBAGO, NEURITIS, SCIATICA, SPONDYLITIS, OSTEO-ARTHRITIS of the HIP-JOINT, SEPTIC ARTHRITIS, SYPHILIS, GOUTY ECZEMA, and other DERMATOSES, STIFF or ANKYLOSED JOINTS after DISEASE or INJURY, etc.

HOT SULPHUR SPRINGS (115°Fahr.); 2 million gallons daily. Employed especially in the form of the celebrated "**Douche Massage**" (Local and General). Also, Local and General **Swimming Baths** and Local and General **Vapour Baths, Douches,** and the whole series of Hydrotherapeutic Applications.

A numerous staff of experienced (specially trained) "**Masseurs**" and "**Masseuses.**"

MARLIOZ — Powerful Calcic-Sulphide Water for the treatment of THROAT AFFECTIONS, LARYNGITIS, and BRONCHIAL CATARRH.

Amusements.—Numerous magnificent Excursions (by Road, Rail, and Water) within easy reach. TWO PALATIAL CASINOS, with Theatre, Opera House, and Concert Hall. Shooting Matches, Horse Races, Regattas, Tennis, Golf, etc.

Internal Lavage Treatment by Diuretic Waters—"Eaux des Deux-Reines," St. Simon et Massonnat.

Hotel Accommodation. Terms from 5 to 12 francs and upwards.

For irrigation purposes, for rendering wounds and mucosa aseptic,
"COFECTANT" (SURGICAL) is the most powerful and least irritant FLUID DISINFECTANT offered to the Profession. An efficient dilution produces no ill effects upon the hands on repeated immersion; instruments are sterilized without corrosion.
"COFECTANT" (COMMERCIAL) for general disinfecting purposes.
SAMPLES AND FULL PARTICULARS FROM
EDWARD COOK & CO., Ltd. (Soap and Disinfectant Specialists), **BOW, E.**

Sauermilch"

THE PREMIER Lactic Acid or Soured Milk Preparation

Prepared in our own Milk Laboratories under the direct control of a skilled bacteriological staff.

WELFORD & SONS (Dairy Company), Ltd.

Chief Offices and Milk Laboratories : : : ELGIN AVENUE, LONDON, W.
Principal Telephone: "Paddington 5469" (3 Lines). Telegraphic Address: "Welfords, London."

THE LANCET.

No. 4681. Vol. CLXXXIV. LONDON, SATURDAY, MAY 17, 1913. Pp. 160.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

A LECTURE on Some Points in Determining the Signification of Albuminuria in Pregnancy. Delivered to Advanced Students in the University of London at St. Bartholomew's Hospital, E.C., on May 8th, 1913, by HERBERT WILLIAMSON, M.A., M.B., B.C. Cantab., F.R.C.P. Lond., Assistant Physician Accoucheur, St. Bartholomew's Hospital..... 1363

ORIGINAL ARTICLES.

Alimentary Toxæmia. By Sir JAMES F. GOODHART, Bart., M.D.Aberd., F.R.C.P.Lond., Consulting Physician to Guy's Hospital, &c. 1367

The Influence of Chronic Sepsis upon Eye Disease. By WILLIAM LANG, F.R.C.S. Eng., Ophthalmic Surgeon and Lecturer on Ophthalmic Surgery, Middlesex Hospital, &c..... 1368

The Relationship of the Thyroid Gland to Alimentary Toxæmia. By FREDERICK LANGMEAD, M.D.Lond., F.R.C.P.Lond., Assistant Physician to the Royal Free Hospital, &c..... 1370

Indications of Nerve Lesion in Certain Pathological Conditions of Blood-vessels. By T. WINGATE TODD, M.B. Manch., F.R.C.S.Eng..... 1371

Remarks on Abnormal Intra-abdominal Developmental Adhesions. By H. M. W. GRAY, M.B., C.M.Aberd., F.R.C.S.Edin., and WILLIAM ANDERSON, M.B., Ch.B. Aberd., F.R.C.S. Edin.—(*Illustrated.*)—(*Concluded.*).. 1373

Chloretone Overdosage. By W. ESSEX WYNTER, M.D. Lond., F.R.C.P.Lond., Physician to, and Lecturer on Medicine at, the Middlesex Hospital..... 1375

The Bacteriology of Cholera and its Relation to the Spread of the Disease from the Point of View of the Health Officer. By J. A. TURNER, M.D.Edin., D.P.H. Camb..... 1376

A Contribution to the Etiology of Rheumatoid Arthritis. By H. WARREN CROWE, M.D. Oxon., M.R.C.S. Eng., L.R.C.P. Lond..... 1377

A Note on the Use of Vaccines in the Treatment of Rheumatoid Arthritis. By A. BERTRAM SOLTAU, M.D. Lond., F.R.C.S. Eng..... 1379

A Case of Volkmann's Ischæmic Contracture of the Hand. By G. DE ŚWIETOCHOWSKI, M.D. Munich, M.R.C.S. Eng.—(*Illustrated.*) 1380

A Case of Gonorrhœal Warts on the Face Successfully Treated by a Vaccine. By W. B. M. ARMSTRONG, M.A., M.D. Dub. 1382

The Futility of the Coroner's Inquest. By WILLIAM A. BREND, M.A. Camb., M.D., B.Sc. Lond. 1404

Man's Mental Evolution, Past and Future. By HARRY CAMPBELL, M.D., B.S. Lond., F.R.C.P. Lond.—III.—(*To be concluded.*)..... 1403

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE: SPECIAL MEETING OF FELLOWS:—Completed Discussion on Alimentary Toxæmia 1383

SURGICAL SECTION:—Aberrant Renal Arteries.—Splenectomy..... 1387

WEST LONDON MEDICO-CHIRURGICAL SOCIETY: Diseases Communicable from Animals to Man.—Exhibition of Cases..... 1388

ROYAL ACADEMY OF MEDICINE IN IRELAND: Congenital Cystic Tumour.—Clinical Report of the Rotunda Hospital..... 1389

REVIEWS AND NOTICES OF BOOKS.

Medizinisch-biologische Familienforschungen innerhalb eines 2232 köpfigen Bauerngeschlechtes in Schweden. Von Dr. H. Lundborg 1390

The Hill Folk: Report on a Rural Community of Hereditary Defectives. By Florence H. Danielson, M.A., and Charles B. Davenport..... 1391

The Nam Family: A Study in Cacogenics. By Arthur H. Estabrook and Charles B. Davenport 1391

Heredity of Feeble-Mindedness. By Henry G. Goddard, Ph.D. 1391

A First Study of Inheritance in Epilepsy. By C. B. Davenport and David F. Weeks, M.D. 1391

A Study of Heredity of Insanity in the Light of the Mendelian Theory. By A. J. Rosanoff, M.D., and Florence I. Orr, B.S. 1391

The Trait Book. By C. B. Davenport..... 1391

The Family History Book. By C. B. Davenport 1391

Zur Morphologie der Nierensekretion unter Physiologischen und Pathologischen Bedingungen. Von Dr. T. Suzuki. Mit einem Vorwort von Professor L. Aschoff..... 1392

Retinoscopy. By James Thorington, A.M., M.D. Sixth edition..... 1393

A Text-book of General Bacteriology. By Edwin O. Jordan, Ph.D. Third edition 1393

Pye's Surgical Handicraft. Edited by W. H. Clayton-Greene, B.A., M.B., B.C. Cantab., &c. Sixth edition 1393

Lehrbuch der Augenheilkunde. Edited by Dr. Theodor Axenfeld. Third edition..... 1393

The History of the Prison Psychoses. By Dr. Paul Nitsche and Dr. Karl Wilmanns 1393

L. Landois' Lehrbuch der Physiologie des Menschen, mit besonderer Berücksichtigung der Praktischen Medizin. Bearbeitet von Prof. R. Rosemann 1394

Parasitology 1394

The Medical Who's Who, 1913.. 1395

Clinique et Thérapeutique Obstétricale du Praticien. By P. Budaus..... 1395

British Journal of Inebriety... 1395

LEADING ARTICLES.

THE INSANITARY CONDITION OF MERCHANT VESSELS..... 1396

DE SENECTUTE 1397

ANNOTATIONS.

International Congress of Medicine—August 6th to 12th, 1913 1398

April at Home and Abroad 1398

Manual Training..... 1399

The Spectrum of the Alkaloid as an Aid to its Detection and Estimation 1399

The Old Age Pension as a Sole Means of Subsistence..... 1400

Antituberculosis Work Amongst Children in Canada 1400

The London and Counties Medical Protection Society.. 1400

Gangrene of all Four Extremities.—(*Illustrated.*)..... 1401

Intestinal Perforation in Paratyphoid Fever..... 1401

The Druidic Serpent's Egg..... 1401

Periodic Paralysis..... 1402

Exhumation Orders 1402

The Etiology and Treatment of Rheumatoid Arthritis..... 1403

The Dangers of the Operation for Adenoids 1403

SPECIAL ARTICLES.

The Final Report of the Royal Commission on University Education in London.—IV.—(*To be continued.*) 1410

The Royal Society Conversazione..... 1412

Royal College of Physicians of London: Meeting of Comitia 1412

The Seventeenth International Congress of Medicine (1913) 1412

Royal College of Surgeons of England: Meeting of Council 1413

The Services 1413

Medical Practice under the Insurance Act. IX.—Rural Practice in Scotland.—(*To be continued.*) 1419

Birmingham: The Health of the City.—The City Analyst's Report.—Medical Men and the Royal Army Medical Corps (T.).—Health Week.—The Children's Hospital..... 1421

Scotland: Conference of Scottish School Medical Officers.—Medical Inspection of Children in Scotland.—Research in Materia Medica at Glasgow University.—Treatment of Tuberculosis in the North 1421

Ireland: Tuberculosis Order for Ireland.—Fever in Connemara.—Medical Benefits in Ireland.—Insured in Belfast..... 1422

Paris: Legalised Concealment of Maternity.—Further Experiments of Dr. Carrel.—The Surgery of War.—Legislation against Drug Habits.. 1422

Vienna: The Number and Distribution of Medical Practitioners in Austria.—Training of Surgical Nurses for the Army..... 1423

Australia: Fairfield Fever Hospital.—Maternity Bonus.—Charities in Victoria.—The Feeble-minded.—The Death of Sir James Graham, M.D..... 1424

CORRESPONDENCE.

The Psychology of the Militant Suffragette (Dr. T. Claye Shaw)..... 1415

Ether in the Tropics (Dr. J. Edward Squire)..... 1415

The Protection Afforded by Vaccination (Col. W. G. King, I.M.S., ret.)..... 1416

The Physiology of the Open-air Treatment (Dr. Francis Hare)..... 1416

Champagne Injections in Surgical Shock (Dr. John O'Conor) 1416

Medicine and Psychology (Mr. Herbert Shore)..... 1417

Necrosis in Eclampsia (Dr. H. Leith Murray)..... 1417

Artificial Pneumothorax—and After? The Mechanical Factor in the Treatment of Phthisis Pulmonalis (Dr. William Ewart) 1417

The Interpretation of Lymphoid and Lymphatic Involvement in the Tuberculosis of Childhood (Dr. H. D. McCulloch)..... 1418

Insanity and Divorce (Mr. A. Hamilton)..... 1418

The Medical Profession and the National Insurance Act (Dr. Gordon R. Ward)..... 1419

Eczema and Pregnancy (Dr. J. C. McWalter)..... 1431

OBITUARY.

John Charles Thorowgood, M.D. Lond., F.R.C.P. Lond. 1425

Hugh B. Wilmot, M.R.C.S. Eng., L.R.C.P. Lond. 1425

Deaths of Eminent Foreign Medical Men 1425

MEDICAL NEWS.

The British Hospitals Association 1366

Chelsea Clinical Society..... 1382

Brompton Hospital 1382

Deaths of Centenarians..... 1395

University of Oxford 1404

The Award of the Riberi Prize 1404

Asylum Workers' Association 1411

Liverpool School of Tropical Medicine..... 1414

Medical Defence Union 1419

Swansea Hospital..... 1419

Glasgow University Club, London..... 1420

Pass-lists of the Royal Colleges of Physicians of London and Surgeons of England, and the Royal College of Surgeons of England 1426

Society of Tropical Medicine and Hygiene..... 1427

Hunterian Museum 1427

Death of Sir Edmund Hay Currie..... 1427

Medico-Psychological Association of Great Britain and Ireland 1427

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 1427

House of Commons..... 1427

Books, &c., received..... 1428

Appointments..... 1429

Vacancies..... 1429

Births, Marriages, and Deaths 1430

Notes, Short Comments, and Answers to Correspondents 1431

Medical Diary 1432

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ARNOLD:—
Bryce ..... Modern Theories of Diet 7
Cammidge .. Glycosuria, &c. 7
Coillie ..... Malingering 7
Diseases of Children 7
Humphris .. Electro-therapeutics .. 7
Hutchison .. Food, &c. 7
Keith ..... Human Embryology .. 7
Leftwich ..... Tabular Diagnosis 7
McCay ..... Protein Element in Nutrition 7
Macleod .... Diabetes, &c. 7
Parsons & Wright..... Practical Anatomy 7
Savill ..... Savill's Clinical Medicine ..... Cover 1
Savill ..... Clinical Medicine 7
Saundby .... Old Age 7
Stewart .... Nervous Diseases 7
Text-Book of General Pathology 7
Vincent..... Internal Secretion, &c. 7

BALE, SONS & DANIELSSON:—
Moullin .... Inflammation of the Appendix ..... Cover 1

CASSELL & CO.:—
Morris, Sir M. ... Diseases of the Skin .. 8

CHURCHILL, J. & A.:—
Dominici & Warden .. Radium-Therapy in Malignant Disease Cover 1

CHURCHILL—(Continued).
Fenwick .... The Value of Radiography ..... Cover 1
Hare ..... Alcoholism .... Cover 1

FROWDE AND HODDER & STOUGHTON:—
Lockwood .. Aseptic Surgery 8
,, .. Clinical Surgery 8
McCann .... Cancer of the Womb &c ..... Cover 1

GLAISHER:—
Savill ..... Neurasthenia .. Cover 1
,, ... Hysteria ..... ,,
West ..... Granular Kidney, &c.. 8

HILTON & CO.:—
Ghosh & Das..... Hygiene and Public Health 6

HODDER & STOUGHTON:—
Health Resorts of the British Islands ..... Cover 1

LEWIS:—
Bruce ..... Radiography 3
Gould ..... Practitioner's Medical Dictionary 3
,, ... Students's Medical Dictionary 3
,, ... Pocket Medical Dictionary 3
Lewis's Charts 3

LEWIS—(Continued).
Moullin .... Enlargement of the Prostate ..... Cover 1
,, ... Biology of Tumours Cover 1
Ostrom..... Massage 3
Starr..... Hygiene of the Nursery 3
Stitt ..... Practical Bacteriology. 3
Swanzy & Werner.... Diseases of the Eye .. 3
Tilley ..... Diseases of the Nose, &c. ..... Cover 1

LONGMANS, GREEN & CO.:—
Hare ..... Food Factor in Disease, &c. ..... Cover 1
Watson-Williams.. Rhinology 6

MACMILLAN & CO.:—
Balfance .... Cerebral Decompression in Ordinary Practice.. 6
Lockwood .. Appendicitis 6

MEDICAL PUBLISHING CO.:—
Lane ..... Operative Treatment of Fractures 8
,, ... Cleft Palate and Hare Lip 8

MILLS & BOON:—
Ash ..... Nerves and the Nervous Cover 1

NISBET & CO.:—
Cressy ..... Non-operative Treatment of Enlarged Prostate ..... Cover 1
Lane ..... Treatment of Chronic Constipation 8

OPHTHALMOSCOPE PRESS:—
Stephenson.. Eye-Strain..... Cover 1

SAUNDERS COMPANY:—
April Murphy Clinics 5
Hornby & Schmidt's Modern Hospital 5
The Modern Hospital ..... Cover 1

SCIENCE REVIEWS, LTD.:—
Bland-Sutton, Sir J..... Fibroids of the Uterus Cover 1

SCIENTIFIC PRESS:—
Stephenson.. Ophthalmic Nursing Cover 1

SPRAGUE & CO.:—
Ernst..... Orthopædic Apparatus Guide 6

UNIVERSITY OF LONDON PRESS:—
Bernstein.... Applied Pathology.... 6

WRIGHT & SONS Bristol):—
Smith ..... Lateral Spinal Curvature, &c. ..... Cover 1

MEDICAL LIBRARIES, &c.:—
Baker, Birmingham—Books..... 8
Behnke—Stammering 8
Kelley—Stammering 8
Matthews Bros—
Wood: Application of Trusses .. 6
Pharmaceutical Press 6

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Aberystwyth Infirmary, &c..... 72
Alnwick Infirmary..... 76
Birkenhead Borough Hospital..... 71
Birkenhead Union 72
Birkenhead and Wirral Children's Hospital 76
Birmingham and Midland Eye Hos... 73
Birmingham Union, Dudley-road Infirmary 73
Bolingbroke Hospital, Wandsworth Common 72
Brentford Union 73
Bridgwater Hospital 72
Bristol Royal Infirmary 72
Cancer Hospital, Fulham-road 73
Canterbury Borough Asylum 76
Cheltenham General Hospital 73
Chesterfield & North Derbyshire Hospital 72
City of Birmingham 74
City of Liverpool—Parkhill Sanatorium 76
Corporation of Calcutta 74
Cossham Memorial Hos., Kingswood. 72
County Asylum, Lancaster 72
County Borough of Warrington..... 74
Denbighshire Infirmary 76
Devon County Asylum, Exminster .. 72
Devonshire Hospital, Buxton 72
Dreadnought Hospital, Greenwich .. 76
Dumfries and Galloway Royal Infirmary 76
Earlswood Asylum, Redhill 76
Eccles and Patricroft Hospital 74
Elder Dempster & Co., Liverpool 77
Evelina Hospital for Sick Children .. 75
Gilbert and Ellice Islands Protectorate 76
Great Northern Central Hospital..... 76
Grimsby and District Hospital 76
Herts County Asylum, St. Albans.... 76
Infectious Diseases Hosp., Bucknall.. 76
Ingham Infirmary and South Shields Infirmary 71
Italian Hospital, Queen-square 76
Kent Education Committee 74
Kent and Canterbury Hospital 74
King Edward VII. Welsh National Memorial Association 72
Leeds General Infirmary 74
Lincoln Mental Hospital 71
London Hospital..... 74
Loughborough and District General Hospital 75
Manchester Northern Hospital for Women and Children 74
Middlesex County Asylum, St. Albans 75
Newcastle-upon-Tyne Dispensary 71
New Hospital for Women 75
North Staffordshire Infirmary, Hartshill 74
Nottingham General Dispensary 71
Nottingham General Hospital 72
Parish of St. Giles, Camberwell 74
Peterborough Infirmary 76
Portsmouth Workhouse Infirmary .. 74
Prince of Wales's General Hospital, Tottenham 75
Queen's Hospital, Birmingham 71
Rotherham Hospital and Dispensary. 71
Royal Albert Hospital, Devonport .. 75
Royal Alexandra Infirmary, Paisley . 75
Royal Berkshire Hospital, Reading .. 72
Royal College of Surgeons of England 76
Royal Cornwall Infirmary, Truro 72
Royal Devon and Exeter Hospital .. 72
Royal Ear Hospital 75
Royal Halifax Infirmary 76
Royal Hospital, Richmond, Surrey .. 76

APPOINTMENTS—(Continued).
Royal National Hospital for Consumption, &c., Ventnor 75
Royal National Mission to Deep Sea Fishermen 77
Royal Portsmouth Hospital 76
Royal South Hants and Southampton Hospital 75
Royal Sussex County Hospital 73
Royal Victoria Infirmary, Newcastle-upon-Tyne 75
Rubery Hill Asylum, Birmingham .. 75
St. Peter's Hospital for Stone, &c. .. 75
Salisbury Infirmary 73
Samaritan Free Hospital for Women. 76
Sheffield Children's Hospital 74
Sheffield Royal Hospital..... 71
Somerset and Bath Asylum, Taunton 72
Southampton Free Eye Hospital ... 71
Swansea General and Eye Hospital .. 75
Three Counties Asylum, near Hitchin 75
Township of Manchester Workhouse . 75
Wakefield General Hospital 75
West Ham and Eastern General Hos. 76
West London Hospital, Hammersmith-road..... 75
West Suffolk General Hospital, Bury St Edmunds 73
W. Sussex County Asylum, Chichester 77
Westminster Hospital 75
Wolverhampton and Staffordshire General Hospital 76
Worcester General Infirmary 76

ASSISTANCIES, MEDICAL..... 77

ASYLUMS, HOMES, &c.—
Ashbrook Hall, St. Leonards-on-Sea.. 63
Asnwood House, Kingswinford 63
Association of Medical Men Receiving Resident Patients 71
Barnsley Hall, Bromsgrove 63
Barnwood House Hospital..... 64
Bishopstowe House, Bedford..... 63
Bootham Park, York 63
Burnaston House, Lancaster..... 71
Buntingford House Retreat, Buntingford 87
Camberwell House, Peckham-road.... 63
Cheadle Royal 64
Clarence Lodge, Clapham-park 63
Coithurst House, Warford..... 71
Coppice, The, Nottingham..... 64
Crawford, Glasgow 79
Dudson Nursing Home 63
Dairymple House, Rickmansworth .. 66
David Lewis Colony, Alderley Edge.. 63
Farnham House, Dublin 66
Frauleln von Müller, W. Kensington. 71
Ghyllwoods 67
Grove House, Church Stretton 64
Grove, The, Catton, Norwich 64
Haslemere Nursing Home..... 71
Haycock Lodge, Newton-le-Willows.. 66
Heigham Hall, Norwich..... 63
Home for Epileptics, Maghull 65
Inverurie Lodge Sanatorium, Colinsburgh 66
Kingsdown House, Box..... 63
Lady Margaret Lying-in House..... 71
Lady Superintendent, Streatham 71
London Fever Hospital 64
Maiting Place, Kent 66
Manna Mead, Blackheath 71
Maryville, Dublin 66
Melbourne House, Leicester 62
Meyrick, Brighton..... 71
Minsmere Hall, Co. Durham 63
Moat House, Tamworth 64
Mount Vernon Sanatorium, Northwood 67

ASYLUMS—(Continued).
Muncenley Sanatorium 67
Newmains Retreat, Lanarkshire 6
New Saughton Hall, Polton, Midlothian 67
Nordrach-on-Dee, Banchory 67
Northumberland House, Finsbury-pk. 62
Northwoods House, Winterbourne .. 6
Norwood Sanatorium, Ltd. 6
Oaea Island, Heybridge 6
Otto House, West Kensington..... 70
Peckham House 64
Pendyffryn Hall Sanatorium 64
Plympton House, Plympton 64
Portsmouth Corporation Mental Hos. 63
Private Maternity Home, Ho e..... 71
Ringwood & Inge, Hayling Island .. 71
Rosemary Sanatorium, Nor-al secon.. 71
St. Andrew's Hospital, Dollis Hill .. 71
St. Andrew's Hospital, Northampton. 64
St. George's Retreat, Burgess Hill .. 62
St. Luke's Hos. for Mental Diseases.. 63
Springfield House Private Asylum, Bedford 64
Stocker, Craven-street..... 71
Stretton House, Church Stretton 64
The Priory, Rotherham 64
Vale of Clwyd Sanatorium..... 66
Warneford Asylum, Oxford 63
Wye House, Buxton 64
Yarrow Convalescent Home, Broadstairs..... 66

COMPANIONS:—
No. 353, L.O., Strand..... 77

FINANCIAL, &c.—
Equitable Reversionary Interest Soc.. 60

HEALTH RESORTS, BATHS, &c.:—
Aix-les-Bains, Savo..... Cover 11
Arosa 66
Badgastein 64
Bad Homburg 66
Bad Wildungen 66
Di vonne-les-Bains 66
Grisons, Oberland 62
Johannisbad 69
Marienbad..... 69
Royal Bad Kissingen 69
St. Joachimstal 69
Smedley's, Matlock 63
The Orchard Spa, Tenbury Wells 66

HOTELS:—
Hotel Windsor 70
Knowle Hotel, Edmouth 70
Pension and Hotel Buol, Davos-Platz 70
Royal Hotel Hydro & Baths, Matlock 70
White Hart Hotel, Margate 70

HOUSE & ESTATE AGENTS:—
Bedford & Co., Wigmore-street 78
Boult, Son & Maples, Liverpool 78
Binnet, Son & Lovton, Vere-street .. 78
Ley Clark, Wimpole-street 78
Martin, Clarke & Co., Seymour-street 78

LIFE & FIRE ASSURANCE, &c.:—
General Life Assurance Co. 60
National Provident Institution 60
Prudential 60
Scottish Widows' Fund 60

MASSAGE:—
London School of Massage 60

MEDICAL ACCOUNTANTS, &c.—
Turner 78

MEDICAL AGENTS:—
Blundell & Rigby 79
Fieldhall, Limited 80
Manchester Clerical, &c., Association 79
Medical Agency 82
Meades, Herbert 79
Meades, J. C. 82
Peacock & Hadley 79
Scholastic, Clerical, &c., Assoc 81
Turner 80

MEDICAL SCHOOLS:—
(LONDON.)
London School of Clinical Medicine.. 58
West London Post-Graduate College.. 58

NURSING INSTITUTES:—
Army and Navy Male Nurses Co-operation 62
General Nursing Association 61
Hospital for Sick Children, Great Ormond-street..... 60
Leeds Trained Nurses' Institution.... 60
London Nurses' Association 62
London Temperance Male and Female Nurses Co-operation 61
Male Nurses Temperance Co-operation 61
Mental Nurses Co-operation..... 60
National Hospital Male Nurses' Assoc. 60
New Mental Nurses' Co-operation.... 61
Nurses' Co-operation, Portland-place. 60
St. John's House 60
St. Luke's Hospital, E.C..... 62
Temperance Association of Male Nurses, Ltd. 61
Temperance Male Nurses Co-operation 60
Temperance Male and Female Nurses Co-operation..... 61
The Retreat, York 60

OFFICIAL NOTICES:—
City of London Lying-in Hospital 58
Dr. Edith Pechey Phipson Post-Graduate Scholarship 58
Durham University Med. Graduates' Association 59
French and German Preparation of English Medical Men 11
Grocers' Company's Scholarships 58
Hospital for Consumption & Diseases of the Chest, Brompton 59
Hospital for Sick Children..... 59
Medical Graduates' College, &c..... 58
Queen Charlotte's Lying-in Hospital. 58
Royal Society of Medicine .... Cover
Seventeenth International Congress of Medicine 9, 10
Throat Hospital, Golden-square 59
University of Cambridge 59
University of Durham 59
University of London 59
University Studentship in Physiology 59
West End Hospital 58
West End Hospital for Diseases of Nervous System 58

PARTNERSHIPS & PRACTICES 77

RAILWAY & STEAMSHIP CO.'S:—
New Zealand Shipping Co. 60

SCHOOLS, PREPARATORY, &c.:—
Rossett House Boarding and Day School 58

TUTORS & LECTURERS:—
Beckton 60
Knight 60
Med. Curres. Col. 58
Med. Graduates' College 60
Sonnelie 6
Weymouth.... 58

For Index to Trade and Miscellaneous Advertisements see page 4.

A Lecture
ON
SOME POINTS IN DETERMINING THE SIGNIFICATION OF ALBUMINURIA IN PREGNANCY.

Delivered to Advanced Students in the University of London at St. Bartholomew's Hospital on May 8th, 1913,

BY HERBERT WILLIAMSON, M.A., M.B., B.C. CANTAB., F.R.C.P. LOND.,
ASSISTANT PHYSICIAN ACCOUCHEUR, ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—Albuminuria is a common symptom in pregnancy, but it is a symptom we can never afford to neglect. It has become an accepted part of the creed of all obstetricians that the urine of every woman should be examined at intervals during the course of her pregnancy, but when the presence of albumin has been detected the interpretation of the significance of the danger signal is often a matter of grave difficulty. Albuminuria in pregnancy may be due to an uncompensated cardiac valvular lesion, an acute febrile illness, or an infection of the bladder or renal pelvis, but in these cases the lesion is usually detected by careful clinical examination, and we are seldom in doubt as to its significance. This afternoon I wish to draw your attention to two conditions, differing widely in their pathology and prognosis and demanding very different treatment, which until recent years were confused together because both are attended by the presence of albumin in the urine, by œdema, by headache, and not infrequently by epileptiform convulsions. These two conditions—the one chronic nephritis, the other the toxæmia of pregnancy—are often difficult to distinguish from one another, and the failure to distinguish between them has retarded our knowledge and obscured the prognosis.

TOXÆMIA OF PREGNANCY.

What do we mean by the toxæmia of pregnancy? It has long been known that pregnant women are particularly prone to develop symptoms which bear a close resemblance to those of diseases known to be due to bacterial or chemical poisons. Bouchard in 1887 drew attention to the possibilities of auto-intoxication. He maintained that in health the body contains toxic substances (some ingested with the food, others formed during the processes of digestion and tissue metabolism), and that these substances are normally excreted by the alimentary canal, the kidneys, the sweat-glands, and the lungs; but if for any reason the toxins are produced in excessive quantities or are not eliminated rapidly a condition of toxæmia or auto-intoxication results. Bouchard's work laid the foundation upon which the theory of a toxæmia of pregnancy rests, and although the toxins have not been isolated, although the chemical composition, their mode of action, and the site of their formation are not definitely known, a chain of evidence has gradually been forged which compels us to believe in the existence of a toxæmia peculiar to pregnancy. We usually regard pregnancy as a physiological condition, but the distinction between the physiological and the pathological is ill-defined—there is a boundary country, but no border line. When we study pregnancy from the point of view of the biologist we find that very diverse opinions are held. One school regards pregnancy as an example of a perfect and harmonious symbiosis, and holds that the metabolism of the mother is so altered and adjusted that she is able to supply all the needs of the growing ovum without injury to her own health; another school looks upon the developing ovum as a foe and an invader against which the maternal organism is required to set up elaborate body defences, and if for any reason these defences fail the act of reproduction may cost the mother her life. I think that we who practise obstetrics subconsciously accept the latter view; we watch our patient carefully throughout her pregnancy; we consider from time to time the defences she is setting up; and if we see her in danger of being overwhelmed we endeavour to strengthen those defences, or in the last resort we destroy the invader.

The Source of the Toxins.

In the brief time at my disposal I cannot review the facts upon which the theory of a toxæmia of pregnancy is built up nor can I describe its many manifestations ranging from such slight disturbances as morning vomiting, neuralgia, or pruritus, to the alarming convulsions of eclampsia or the fatal coma of icterus gravis gravidarum. I must, however, refer briefly to the source of the toxins. I have no doubt that those who have followed recent research will agree with me that the trophoblastic layers of the chorionic epithelium may now be regarded definitely as the source of the toxins. Here are produced enzymes capable of exerting a destructive action upon the maternal tissues, an action necessary for the implantation of the ovum in the uterine mucosa. It is probable that the enzymes themselves are not toxic, but by their action on maternal cells toxic substances the direct causes of the lesions of pregnancy toxæmia are produced. The placental ferments not only themselves initiate degenerative changes terminating in necrosis in maternal tissues, but also excite to an increased and abnormal activity intracellular ferments already present.

To Emil Abderhalden, professor of physiology in the University of Halle, belongs the distinction of first demonstrating in the blood of pregnant women the presence of ferments capable of splitting up placental albumins and placental peptones. These ferments can be demonstrated from the sixth week of pregnancy until from 10 to 15 days after delivery, when they can no longer be found. Similar ferments have been demonstrated in the blood of pregnant horses, cows, dogs, guinea-pigs, and rabbits. Where the necessary precautions to avoid errors of technique have been taken all attempts to demonstrate them in the blood of non-gravid human beings and animals have failed, hence Abderhalden in demonstrating the presence of these ferments in pregnant women has provided us with a method of serum-diagnosis of pregnancy which, as far as we know at present, is absolutely reliable. The presence of the enzymes is demonstrated as follows: 1 gramme of placental albumin and 3 to 5 c.c. of the serum to be tested are placed in a small dialyser; the dialyser must previously have been tested to make certain that it does not transmit albumin and does transmit peptone; if it fails at either of these tests it is rejected. The dialyser with its contents is then suspended in 20 c.c. of distilled water and placed in an incubator at 37° C. for 16 to 24 hours. At the expiration of this period the distilled water is tested for the presence of peptone by the biuret test, or preferably by using tri-keto-hydrindenhydrate. The placental albumin is invariably converted into peptone by the serum of pregnant women; it is never so converted by the serum of the non-gravid.

The enzymes not only possess the power of converting albumin to peptone, but they further split up the peptones, and this property is made use of in applying the test in another way. 1 c.c. of a 10 per cent. solution of placental peptone is mixed with 2 c.c. of the serum to be tested and placed in a small polarisation tube; the degree of rotation is read off and noted. The tube is then placed in an incubator and the change in the degree of rotation ascertained from time to time. Abderhalden found that with the serum of the non-gravid the maximum change of rotation produced was 0·03°, but with the serum of the pregnant it was invariably greater and sometimes exceeded 0·2°. This work of Abderhalden is of vast importance to those of us who are working at the subject of pregnancy toxæmia; hitherto we have assumed the presence of these ferments, now we know that they exist.

Demonstration of Antibodies.

I must briefly draw attention to one other phenomenon which a study of the blood of pregnant women has revealed to us. Between the sixth and the fourteenth weeks of pregnancy, at a time when the trophoblast has reached its maximum development and the invasion and destruction of maternal tissues are greatest, a definite antibody can be demonstrated in the blood of the mother. The significance of this antibody we do not know; it is possible that its function may be to neutralise toxins produced by the destructive action of the placental enzymes on the maternal cells.

For the demonstration of the antibodies a complement-fixation test similar to that of Wassermann for syphilis is

employed. The antigen used is an extract of chorionic villi of a young placenta; the indicator a mixture of sheep's corpuscles and the serum of a rabbit immunised against sheep's corpuscles; the complement is supplied by the serum of a guinea-pig. The technique is that of the well-known Wassermann test. This antibody can be demonstrated only between the sixth and fourteenth weeks of pregnancy; after this it disappears. There is no doubt of this fact, for many patients who gave a positive reaction in the early months gave a negative reaction in the later months. The study of immunity has taught us that a foreign element introduced into the blood stream excites the production of an antagonistic element, and it is noteworthy that the presence of this antibody is limited to the period of maximum destructive activity of the chorionic epithelium. Another possible explanation must be recognised; Wassermann has recently put forward the view that the antibodies of syphilis are produced from the destruction of tissues disintegrated by the spirochæta, and it is possible that the antibodies of pregnancy may be the residue of maternal tissues destroyed by the activity of the chorionic villi. In the present state of our knowledge it is impossible to form conclusions as to whether pregnancy toxæmia is related in any way to a failure in the production of these antibodies; there is no evidence available in support of such a view, but further researches upon these lines are urgently called for.

ALBUMINURIA ASSOCIATED WITH CHRONIC NEPHRITIS.

Well, gentlemen, in the diseases we term pregnancy toxæmias we have some of the commonest causes of albuminuria, and I will ask you now to turn your attention for a few minutes to a totally different group of cases, those in which the albuminuria is associated with chronic nephritis. It is not uncommon in hospital practice to find a young primipara seeking advice about the fifth month of her first pregnancy because of headache and œdema of the legs; on examination we find albumin and tube casts in her urine, and we are doubtful whether the case is to be regarded as one of toxæmic albuminuria or of chronic nephritis in which the symptoms have become aggravated as the result of pregnancy. On inquiry we may ascertain that some years previously she suffered from scarlet fever followed by an illness in which œdema was a marked symptom; as far as she is aware she got quite well and remained in good health until she became pregnant. Investigation may disclose some degree of cardiac hypertrophy, and it is sometimes possible to ascertain that the quantity of urine passed has been above the average, that its specific gravity has been low, and that it has contained traces of albumin. If all these data are available the case becomes clear, the kidneys have been damaged by nephritis following scarlet fever, but have been able to perform their functions so long as no increased strain was thrown upon them, and the symptoms of renal insufficiency, if present, were so slight that the patient was unaware of their presence. In pregnancy the kidneys are called upon to excrete the waste products of fœtal as well as maternal metabolism, and of a maternal metabolism which has undergone profound changes; if healthy they are able to perform these functions, for they possess a reserve force which can be called upon when increased work is required from them, but if damaged (even to a comparatively slight extent) they may possess no reserve force whatever, they are working at their highest level in excreting the waste products arising from the wear and tear of everyday life, and when called upon for an additional effort they are unequal to the task.

THE PROBLEM OF DIAGNOSIS.

The problem I propose to discuss this afternoon is how to distinguish these two groups of cases from one another. It has been my good fortune to have charge of the maternity ward of this hospital since its establishment two years ago, and to have the invaluable assistance of two chemical pathologists, Dr. J. G. Priestley and Mr. Mackenzie Wallis, in investigating the urine in all cases of albuminuria. It soon became clear that in a number of patients the two conditions of chronic nephritis and pregnancy toxæmia were co-existent. A damaged kidney is more susceptible than a healthy one to the action of the pregnancy toxins, and the lesions of an acute toxæmia are often grafted on to those of a chronic nephritis. To this combination of lesions the term "nephritic toxæmia" is applied. The condition found post mortem is characteristic; the kidneys present two sets of lesions: (*a*) they are contracted granular and contain an excess of fibrous tissue, evidences of chronic long-standing disease; (*b*) there is an acute epithelial degeneration as though a virulent poison had descended upon the kidneys and killed the epithelial cells in their attempts to excrete it. The symptoms of nephritic toxæmia may develop at any stage of pregnancy; I have seen them prove fatal as early as the tenth week, but more usually they develop during the last 12 weeks.

From this brief statement of the problem before us it will be seen that two questions arise: (1) Can we distinguish between an albuminuria the result of chronic nephritis and an albuminuria due to pregnany toxæmia? and (2) In a case of chronic nephritis can we tell when pregnancy toxæmia has been grafted on to the old kidney lesion?

In the attempt to answer this question I will ask you first to direct your attention to the phenomena of acidosis in pregnancy toxæmia. I shall place before you a series of observations extending over five years, and I should like to state here that Dr. Walter C. Swayne, in a paper read before the Royal Society of Medicine two years ago, drew attention to the importance of the subject.

ACIDOSIS IN PREGNANCY TOXÆMIA.

The study of acidosis in pregnancy toxæmia is beset with difficulties. Acidosis may be caused by any alteration of tissue metabolism which results in the formation of an excessive quantity of acid radicles. Such acid radicles combine with alkalies to form salts and in this form are excreted in the urine. The bases which combine with and neutralise these acid radicles are: 1. *Ammonia*, a product of protein metabolism which is normally carried to the liver, there formed into urea and as such excreted in the urine. 2. *Sodium and potassium* compounds from the fluids and cells of the body.

When the amount of acid radicles produced is so great that they cannot be neutralised by these alkalies the symptoms of acid intoxication, rapid pulse, deep breathing, and coma supervene. A condition of acidosis may, however, persist for a long time before the symptoms of acid intoxication become manifest.

I will ask you now to follow me in an attempt to inquire to what extent the phenomenon of acidosis are present in the albuminuria of pregnancy and of pregnancy complicated by chronic nephritis. The inquiry is difficult. In the first place, acidosis may be produced by a variety of conditions which are not infrequently complications of pregnancy toxæmia; thus it is well established that acidosis may be produced by starvation, by persistent vomiting, or by the administration of chloroform; we must therefore exclude from our results all cases in which any of these complications were present. This reservation materially restricts the field of our investigation and limits the usefulness of any test which may be applied as the result of this inquiry.

A second difficulty is found in the fact that chronic nephritis is often complicated by pregnancy toxæmia; if, however, it can be established that acidosis is a constant phenomenon in pregnancy toxæmia and is not present in chronic nephritis the onset of acidosis will prove a valuable indication that nephritic toxæmia has developed.

In this series of observations I have employed four tests to determine the presence of an acidosis: 1. The alkalinity of the blood has been estimated. By the "alkalinity of the blood" I mean its acid-combining property or the amount of alkali in it which can be substituted by an acid. 2. The proportion of nitrogen excreted in the urine in the form of ammonic salts has been estimated. 3. The urine has been examined for the presence of diacetic acid and acetone. 4. The amount of sodium bicarbonate administered by the mouth required to render the urine alkaline has been determined. I will put before you briefly the results obtained by these various tests.

The Alkalinity of the Blood.

This has been determined by a modification of the method suggested by Wright. The blood was withdrawn from a vein in the arm, allowed to coagulate in a glass capsule and the serum drawn off. The alkalinity of the serum thus drawn off was estimated as follows. A number of solutions of normal sulphuric acid diluted with distilled

water were prepared in strengths varying from 1 in 20 to 1 in 100. 0·25 c.c. of the serum was mixed with 0·25 c.c. of the acid solutions and the strength of the acid solution required to neutralise the equal volume of serum was ascertained, a standardised solution of litmus being used as the indicator. Wright's observations have shown that in a normal individual who is not pregnant the strength of the acid solution required to neutralise the serum is between 1 in 30 and 1 in 45, the average being 1 in 35. This may be expressed by the formula :—

$$\frac{N}{35}\,H_2SO_4$$

I first made a series of observations upon six pregnant women who had shown no signs of deviation from the normal. All the patients were between the thirty-second and fortieth weeks of pregnancy. The results of these observations were as follows :—

Case 1	32 weeks	.....	$\frac{N}{38}\,H_2SO_4$
,, 2	34 ,,	.....	$\frac{N}{40}$,,
,, 3	35 ,,	.....	$\frac{N}{39}$,,
,, 4	38 ,,	.....	$\frac{N}{37}$,,
,, 5	38 ,,	.....	$\frac{N}{42}$,,
,, 6	40 ,,	.....	$\frac{N}{40}$,,

Three observations were taken in each case and the formula given is the mean of the three observations. Comparing these figures with those obtained by Wright it appears that normally there is a slight diminution in the alkalinity of the blood during pregnancy. In the cases of pregnancy toxæmia, however, the fall is generally marked and sometimes very striking. This is shown in the following table :—

Case 1	Eclampsia (after two fits)	.....	$\frac{N}{68}\,H_2SO_4$
,, 2	Kidney of pregnancy	.....	$\frac{N}{54}$,,
,, 3	Eclampsia (before fits)	.....	$\frac{N}{70}$,,
,, 4	Eclampsia (before fits)	.....	$\frac{N}{48}$,,
,, 5	Eclampsia (after seven fits)	.....	$\frac{N}{72}$,,
,, 6	Kidney of pregnancy	.....	$\frac{N}{84}$,,
,, 7	Kidney of pregnancy	.....	$\frac{N}{62}$,,
,, 8	Eclampsia (after one fit)	.....	$\frac{N}{72}$,,
,, 9	Eclampsia (before fits)	.....	$\frac{N}{88}$,,

It will be seen that in all these cases the alkalinity of the blood was below that of normal pregnancy, but the fall in alkalinity bore no definite relation to the severity of the toxæmia, for in Case 9, a relatively mild case, the fall was greatest, whilst in Case 5 in which after many violent convulsions the patient died in coma the fall was much less marked. I have been able to estimate the alkalinity in only four cases of chronic nephritis complicating pregnancy. In each instance the urine contained albumin and tube casts and œdema was a marked symptom :—

Case 1	Gravida ..... 36 weeks	.....	$\frac{N}{40}\,H_2SO_4$
,, 2	,, ... 35 ,,	.....	$\frac{N}{42}$,,
,, 3	,, ... 30 ,,	.....	$\frac{N}{38}$,,
,, 4	,, ... 38 ,,	.....	$\frac{N}{40}$,,

None of these cases had, or subsequently developed, uræmic convulsions. It will be seen that the fall in alkalinity was not greater than that found in normal pregnancy.

Criticism of these results.—In employing this method we cannot claim to estimate accurately the alkalinity of the blood, but having established a normal standard we can detect deviations from that standard, and this is all that is required for the purpose we have in view. Whether we are justified in regarding the diminished alkalinity of the blood as evidence of acidosis in these cases is another question altogether, for in eclampsia lactic acid can often be found in the blood, and it is quite possible that the fall of alkalinity is due in part at least to this cause. Lactic acid may be found after any violent muscular exertion, particularly if the supply of oxygen is deficient and has been detected in considerable quantities after the convulsions of uræmia; I have had no opportunity of examining the blood of a pregnant woman after uræmic convulsions. It must be borne in mind that in acidosis induced by the administration of mineral acids it is some time before the alkalinity of the blood is diminished, for the alkalies are extracted first from the tissues and from the blood only when the supply begins to fail, hence a diminished alkalinity is not to be looked for as an early sign of acidosis, and I have not found it in the slighter cases of toxæmia.

I feel justified, however, in concluding that in cases of albuminuria of doubtful origin in pregnancy the determination of the alkalinity of the blood should form part of the investigation and sometimes affords considerable help in reaching a diagnosis.

The Proportion of Nitrogen Excreted in the Form of Ammonia Salts.

In these series of observations I am greatly indebted to Dr. Priestley and Mr. Mackenzie Wallis, who have performed a considerable number of the estimations. The total nitrogen was estimated by Kjeldahl's method, by which all the nitrogen is converted into ammonia and estimated as ammonia sulphate; the urea was estimated by the sodium hypobromite method, and the ammonia by Schlösing's method. The results have shown uniformly an increase in the ammonia coefficient, whilst in the chronic nephritis cases such a rise has not been noted, except in one case where convulsions supervened, and in this case it is doubtful whether the convulsions should be regarded as uræmic or eclamptic. Observations in normal pregnancy have shown that from 80 to 85 per cent. of the nitrogen is excreted as urea and 4 to 5 per cent. as ammonia.

I will first give the figures we obtained in the cases of toxæmia :—

		Urea.	Ammonia.
Case 1	Eclampsia	63 per cent.	16 per cent.
,, 2	Kidney of pregnancy	71 ,, ...	12 ,,
,, 3	,, ,,	63 ,, ...	18 ,,
,, 4	Eclampsia	62 ,, ...	18 ,,
,, 5	,, ...	51 ,, ...	16 ,,
,, 6	,, ...	68 ,, ...	22 ,,
,, 7	Icterus gravis	63 ,, ...	17 ,,
,, 8	Kidney of pregnancy	74 ,, ...	10 ,,
,, 9*	,, ,,	63 ,, ...	21 ,,
,, 10	,, ,,	66 ,, ...	14 ,,

* Convulsions 10 days later.

It will be seen that in this series of cases the ammonia coefficient is high throughout and the urea coefficient is diminished. It is also to be noted that the proportion of undetermined nitrogen is usually high.

Let us now compare a series of six cases of chronic nephritis :—

			Urea.	Ammonia.
Case 1	Gravida ...	32 weeks. ...	82 per cent. ...	5 per cent.
,, 2	,, ...	35 ,, ...	80 ,, ...	6 ,,
,, 3*	,, ...	28 ,, ...	62 ,, ...	14 ,,
,, 4	,, ...	30 ,, ...	87 ,, ...	4 ,,
,, 5	,, ...	20 ,, ...	83 ,, ...	5 ,,
,, 6	,, ...	38 ,, ...	78 ,, ...	7 ,,

* Convulsions ? uræmic ? eclamptic.

With the exception of Case 3 there is very little alteration of the urea-ammonia ratio, and further the urea + ammonia is practically a constant quantity. There is no marked increase in the quantity of undetermined nitrogen. The six

patients in this list are known definitely to have suffered from chronic nephritis before the commencement of the pregnancy—in most cases the symptoms became more marked as pregnancy advanced, but there were no sudden or acute exacerbations such as occur in nephritic toxæmia.

These results point to the conclusion that an increase in the ammonia coefficient is constant when the symptoms of toxæmia are marked and is but seldom present in chronic nephritis. It is well known that an increase in the ammonia coefficient may be caused by an excessive ingestion of proteins, by starvation, or by any disease which leads to a disintegration of liver tissue. In the majority of cases there had been no starvation and there had been no excessive ingestion of protein, indeed, before the observations were made some of the patients had been carefully dieted for several days.

I believe that the high ammonia coefficient is to be attributed to the action of the pregnancy toxins upon the liver, but my observations do not justify me in concluding that the ammonia coefficient can be regarded as an index of the gravity of the hepatic lesions. It has been stated that the damaged liver is unable to convert the ammonia brought to it into urea, but this explanation is probably not correct, for after the administration of sodium bicarbonate the ammonia falls and the urea increases.

The Presence of Acetone Bodies—β-oxybutyric Acid, Diacetic Acid, Acetone.

In every case of severe toxæmia acetone and diacetic acid have been detected—in several of the milder cases both were absent. For the detection of acetone a modification of Rothera's test was employed: 5 c.c. of urine are shaken up in a test tube with ammonium sulphate until saturated, 0·5 c.c. of strong ammonia is added, and then three or four drops of a freshly prepared solution of sodium nitro-prusside; if acetone be present a beautiful purple colour is produced. The presence of diacetic acid was demonstrated by the well-known ferric chloride test. In 50 cases of normal pregnancy neither acetone nor diacetic acid was found. The cases of chronic nephritis in pregnant women give interesting results: 15 cases were examined; in 10 both these bodies were absent, in 5 both were present. The urine from 20 cases of chronic nephritis in the non-gravid was examined; two of the patients had previously had uræmic convulsions; in none of these 20 cases were either acetone or diacetic acid discovered. The results may be tabulated thus:—

		Acetone.	Diacetic acid.
Total cases of albuminuria examined	67		
Pregnancy toxæmia (with marked symptoms) ...	32	32	32
Chronic nephritis pregnancy	15	5	5
Chronic nephritis in the non-gravid	20	0	0
Normal pregnancy	50	0	0

The five cases of nephritis in which the bodies were detected showed symptoms which indicated the development of a pregnancy toxæmia—a sudden increase in the œdema, the onset of headache, and an increase in the amount of albumin. I think I am justified in believing that a pregnancy toxæmia had supervened upon a pre-existing nephritis.

I regard the presence of acetone and diacetic acid as probably due to the effects produced upon the liver-cells by the pregnancy toxins. It is generally agreed that β-oxybutyric acid, the mother substance of both acetone and diacetic acid, is derived from fats. The fat used by the body is probably first carried to the liver and there elaborated and broken up into smaller molecules in the process of oxidation. The liver, damaged by the pregnancy toxins, is unable to deal adequately with the fat brought to it, and disordered fat metabolism results. It is well known that by the administration of carbohydrates the acetone bodies are diminished; this is attributed to the fact that the carbohydrate spares the fat and so relieves the strain upon the liver. It has been suggested, also, that the carbohydrates supply an easily assimilable nutrient to the liver-cells and enables them to regain to some extent their normal functions.

The Amount of Sodium Bicarbonate Administered by the Mouth Required to make the Urine Alkaline.

In a normal person 2 drachms of sodium bicarbonate administered by the mouth will usually render the urine alkaline in 24 hours. In chronic nephritis this effect is produced by the same dose, but in pregnancy toxæmia a larger dose is required. This fact is illustrated by the following series of cases:—

Case 1.	Eclampsia	3iii	Urine—acid.
,, 2.	,, ...	3ii	,, ,,
,, 3.	Kidney of pregnancy	3iii	,, neutral.
,, 4.	,, ,,	3ii	,, acid.
,, 5.	Eclampsia	3iii	,, ,,
,, 6.	Kidney of pregnancy	3ii	,, ,,

I place but little value upon this test by itself, but it confirms the results obtained by other methods.

Conclusions.—Remarks on Treatment.

From this evidence I think we are justified in concluding that a condition of acidosis is found constantly in cases of pregnancy toxæmia when the lesions are of a certain grade of severity, and is not found in cases of chronic nephritis even when the symptoms are severe; and, further, that the onset of an acidosis in the course of a chronic nephritis in pregnancy may be interpreted to mean that toxæmia has been added to the existing lesions. I have been disappointed to find these tests have failed me in the earlier and slighter cases; in a number of instances I could find no evidence of acidosis, and in several instances where the symptoms passed away under treatment the ammonia-urea coefficients remained normal, and acetone and diacetic acid were never demonstrated in the urine. In spite of this, however, the test is of real clinical value. I do not believe that the symptoms are due to the acidosis; indeed, these results definitely disprove this theory, because the symptoms are often present in a mild form before we can find any evidence of acidosis, but the results of treatment have convinced me that if we diminish the acidosis we alleviate the severity of the symptoms. In severe cases of eclampsia I have seen marked improvement follow intravenous infusion of solutions of sodium acetate and sodium bicarbonate.

In the light of these observations I would draw attention to some important points in treatment. 1. In cases of pregnancy toxæmia chloroform should never be administered, because the action of chloroform is to render more grave the lesions which already exist and to increase the acidosis. Ether administered by the open method is in every way preferable as an anæsthetic. 2. Calomel should not be used as an aperient, for the lesions in the liver and kidney produced by mercurial poisoning are of the same nature as those of pregnancy toxæmia, and it is probable that mercury even in small doses will increase the gravity of the lesions already existing. 3. For a similar reason douches of mercurial antiseptics should never be employed. 4. In all cases where an acidosis is present intravenous infusion with a solution of sodium bicarbonate or sodium acetate should be practised. 5. The fat metabolism should be spared as far as possible by the administration of glucose. My practice has been to administer it by the rectum when vomiting is present and to give it by the mouth in the form of glucose lemonade where the digestive functions are not deranged. 6. When a pregnant woman suffering from chronic nephritis shows evidence of the existence of acidosis, the uterine contents should be evacuated without delay, for with a kidney previously damaged the prognosis of pregnancy, toxæmia is very grave.

THE BRITISH HOSPITALS ASSOCIATION.—The fourth annual conference of this association will be held at Oxford from June 26th to 28th next, when various papers dealing with the National Health Insurance Act as affecting the voluntary hospitals, the treatment of tuberculosis, and the upkeep of hospitals will be read and discussed. Applications for membership should be addressed to the honorary treasurer, Mr. E. Stewart Johnson, secretary of the Hospital for Sick Children, Great Ormond-street, London, W.C., accompanied by the annual subscription of half a guinea. All communications in reference to the general business of the association should be addressed to the honorary secretaries, Mr. Conrad W. Thies and Mr. Alexander Hayes, 14, Victoria-street, Westminster, S.W.

ALIMENTARY TOXÆMIA.[1]

BY SIR JAMES F. GOODHART, BART., M.D. ABERD., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL, ETC.

WHEN I entered the portals of medicine 49 years ago there was a maxim abroad that no one became pyæmic from surface wounds. So that abrasions, skin lesions of various kinds, even such things as boils and carbuncles—and it may be assumed superficial abrasions of the mouth, and perhaps of the intestinal tract, were not considered likely to cause danger, some normal reactions of the part protecting them therefrom. And this being born of experience was largely true. We have gone onwards since those days, and we know now more about sores, as being all prone to the implantation and cultivation of germs, so that we dwell very insistently upon their importance as foci of infection, but what was *also* self-evident before, and indeed unduly dominant in our methods of treatment, we now seem almost to neglect—I allude to the *existing* and *active* protective agencies within our bodies, our knowledge of which has equally been advanced, but the power of which, it must be admitted, it is difficult to sum. This has a real bearing upon alimentary toxæmia, because that subject has been, in a very special manner, linked up of late years with the mouth and the colon.

As regards the mouth, the disease that we now know as pyorrhœa alveolaris was never heard of in the days of which I speak, whereas now I seldom go long without something so called being shown to me where Oral sepsis with a big O is suggested as the cause of symptoms all and sundry. And there, and here this afternoon, I ask the question, Is there a sufficient body of evidence as yet accumulated to make sure that, after having deducted the influence of the natural restorative reactions of the part, a vaccine has permanently established itself as the most successful line of treatment? I think that the fascination of oral sepsis has run away with very many of us and that it is recommended for more than it is worth. The natural antiseptic ity of the oral cavity is missed, and the experience common to us all is overlaid. Some few years ago I saw a man—a doctor, too—who had been actively engaged, I was told, in treating a pyorrhœa for nearly a year. The condition of the gums was quite trivial, and examination revealed that he was suffering from advanced cirrhosis of the liver from which he died in the course of a few weeks.

Then with regard to the disease pernicious anæmia, let me ask the same question, Is there any sufficient evidence at hand that Dr. W. Hunter's suggestion of its origin in oral sepsis has any effect in controlling the disease? Some years ago there came to me a middle-aged man with a very severe anæmia associated with *good* teeth, but a very profuse pyorrhœa. I somewhat reluctantly assented to the removal of all his teeth, and he recovered quickly, and he is still alive and well. But many a case of grave anæmia have I seen since then to which strict attention to the question of oral sepsis has been paid, and I have no further evidence that it has any cardinal place in the causation of this fatal disease.

When we turn to the nether end of the digestive tract here also may be found an undue insistence upon what is but an occasional pernicious perversion of function, to the disregard of the consideration of those self-protective agencies that characterise healthy organs and tissues.

I agree with Professor Keith, that this discussion centres round the nature and functions of the large intestine. It is, indeed, an attractive subject, and the teachings of physiology in respect to it are not, I believe, by any means sound. For the last few years we have, indeed, been quite obsessed by unsound doctrine, that has led in some cases to the arraignment of the large bowel at the bar of Surgery, and even to its capital punishment. And by this somewhat autocratic proceeding it has certainly been established that some persons can live in apparent comfort without it.

But there is another view that cannot be disregarded, which is: that the colon is a great benefactor, and has gradually elaborated itself, probably is still doing so, into a great organ of digestion. It is said that the colon absorbs little but water, but I cannot bring myself to believe it. To my sense the essential object of its existence is to expose as extensive a surface as possible to the food that is supplied to it, and to this end it has become an organ for *delay* and for *storage*. Yet, astonishing as it may seem, half mankind seems to consider these functions *morbid*, and is bent on defeating them. The colon should be full and not empty is *my* physiology, satisfied and not hungry; yet, encouraged by us doctors, hundreds of thousands of human beings have grafted into themselves the idea that their main object in life is to get their bowels open daily, for that should they fail in this they will be poisoned by the absorption of the noxious products that they suppose to be produced in their kitchen garden. We talk of the sacculations of the colon as if their sole use were as traps for bacteria that prove sources of septic inflammation and toxic fever, and so they may be, and are, upon occasion, but their main service is as extensions of the mucous surface of the bowel.

Then what of the contents of the bowel—the mucus, the hordes of various organisms, the juices, the gases? Who can controvert the assertion that all in turn are not alone serviceable, but necessary, by breaking up the food and in changing its nature, and by presenting it to the mucous surface in a more intimate and assimilable state?

Then these bacteria. Is it certain that they are themselves the poisonous agents? Do we know of a surety whence they come? Can we even state positively what they are? I gather that Dr. Ledingham might say No. And for myself I would like to hazard the opinion that with the loose habits known to prevail in these lowly symbionts it must often be a very wise child that can recognise its own father. Who will gainsay that in these early strata of living atoms life may be even suspected to be amphoteric.

As regards *delay*, it cannot be in doubt that it is an essential function of the colon. I was fortunate long ago in coming across two cases of fistula low down in the small intestine, and from them I learned that coloured fluid (stout) taken in at the mouth reappeared at the abdominal opening in about seven or eight minutes. From which I assumed that fluids passed rapidly along the small intestine. That this is so has been abundantly proved by Hertz and others by means of the X rays.

Again, that creamy chyme alone is found in the small bowel, and that as soon as the contents reach the cæcum may solids appear, show both what an enormous amount of absorption must go on in the large bowel and that delay is a necessity. And I would venture to submit that although upon occasion they may prove a source of danger, the kinks and pouches that are present in all cases are but the natural convolutions of a pleated surface brought about by this necessity.

Lastly, I would ask you to consider the intestinal *muscle*. Short are its fibres; little by little is the feature of its action. A kink to you or me is no kink to it. Every minute of its day it is negotiating kinks and getting round corners, and it is, I suspect, only when a kink becomes something more and approximates to a volvulus that mechanical interference is called for. May I not be thought impertinent when I add that to see a kink with one's own eyes is not necessarily a proof that an obstruction, or even delay, is in being.

One other word about the muscle of the colon that I think an important one. In this poison-bag theory it seems to be suggested that the colon is a mere sac in which food lies passively and rots. I shall never forget the hour when I stood beside a colleague as he went through the first stage of an inguinal colotomy. He had made the external incision, and had carefully and firmly stitched the colon to its edges, and the patient was about to be put back to bed, when suddenly the colon woke up in a fury, and with a snap that I still remember tore away every stitch and retracted into the abdominal cavity. Yet we are asked to suppose that it is a mere cloaca full of noxious contents, and that it can make no effort to expel them.

I put these few points because I have thought that the subject of alimentary toxæmia has of late been edging a little off sound lines and is occupying not quite the position that the facts justify. But in saying this I lay myself open to the retort that the physician is little more than an obstructive. It is not so. There is no one of us who is not cherishing the hope—nay, even the expectation—that a

[1] A paper read at a special meeting of Fellows of the Royal Society of Medicine on May 5th, 1913, being a contribution to the discussion on Alimentary Toxæmia.

fuller knowledge, say of the effects of grafting and of the symbiotic fusions of vegetable physiology, will have far-reaching issues upon the interpretation of the processes of animal life, and therefore upon the management of disease. But it is no more than our duty to try to see things in their just proportions and to be as sure as may be that we are on well-proved ground before committing other people to every thing that the pioneer puts before us. This is, indeed, but justice to the pioneer.

Greatly as one must admire the skill of Surgery in marshalling its facts, and the energy and courage by which it has obtained them, we may, I am sure, be allowed to question some of its deductions, for otherwise we might almost be persuaded to weep for humanity, that it had ever emerged from among the four-footed beasts, for so dire are the effects that are pictured of the upright posture that even colectomy, hard saying that it is, might excusably take its place as the bed-fellow of popular remedies. But I would gently demur when relying entirely upon its own experience it declines to allow me to appeal to mine; and bids me to accept without quibbling the hard facts, as I quite agree they are, of operative experience. You remember the old remark—supposed to be consolatory—that a man can only die once. I prefer the same thing from another aspect—a man can only live once; it is the larger truth. For what if a going concern should have been scrapped for the sake of a crooked doctrine?

Let me leave it there. I dreamed that as I walked along on the evening of my day, there passed a band of my distinguished *confrères* on their way, by new and dangerous methods of locomotion, to visit the Garden of Eden. And as they arrived at the entrance of that enchanted land there occurred a temporary hitch—a portal or intestinal stasis in fact—within. And as I looked I saw that it was occasioned by a body of attenuated and diaphanous creatures, evidently some of the colectomied sent away to convalesce. And as my friends severally entered in, I heard this question addressed to each, in tone more lugubrious than might have been anticipated: "We have arrived here safely, but now what are we to do, for we can't eat fruit?" Which thing is an allegory.

THE INFLUENCE OF CHRONIC SEPSIS UPON EYE DISEASE.[1]

BY WILLIAM LANG, F.R.C.S. ENG.,

OPHTHALMIC SURGEON AND LECTURER ON OPHTHALMIC SURGERY, MIDDLESEX HOSPITAL; SURGEON TO THE ROYAL LONDON OPHTHALMIC HOSPITAL.

IN the admirable contribution which Mr. J. B. Lawford has made to this discussion he names me as one of the first to recognise the connexion between pyorrhœa and inflammation of the iris and ciliary body. This observation was made many years ago, and although I have never written on the subject, I have for the last ten years been teaching both at Moorfields and at the Middlesex Hospital that a chronic source of sepsis could cause an inflammation in any part of the eye.

My attention was first drawn to the subject of oral sepsis as a factor in the causation of eye diseases by an original observation made by my friend and colleague Mr. William Hern, who told me he had found pyorrhœa in every case of acne rosacea, and noticed that the eruption improved or disappeared after the mouth was treated. At that time a patient with acne rosacea was under my care for attacks of keratitis, which had recurred at intervals in spite of local and general medication, but after treating the pyorrhœa the keratitis ceased to return.

From this time onwards I examined the gums in all the cases of inflammatory affections where the ordinarily accepted causes of the disease were absent, and thus gradually I came to recognise that pyorrhœa caused inflammation in every part of the eye.

After a time in cases where all the other recognised causes were absent and the mouth was clean I began to look elsewhere for the source of sepsis. In this way I gradually extended my searches until I recognised that the source of sepsis might be in any of the mucous membranes, in a chronic sore on the skin, or in a sinus opening on the skin or on a mucous surface.

Although in common with other observers I failed, after much investigation, to discover the nature of the poison, nevertheless, after watching the effects produced by removing the suspected source of sepsis I was convinced that the diagnosis was correct; for as soon as the source of sepsis is removed the inflammation begins to subside, the rheumatic pains in various parts cease, a feeling of well-being takes place, and in recent cases of central choroiditis the lost vision quickly returns.

In hospital practice, where clean mouths are the exception, one sees every day many cases of inflammation of the eye due to oral sepsis. In order to find out what proportion of the cases of inflammation of the eyeball occurring in private practice were due to sepsis I have had a table made from the notes of my last 10,000 patients. In it is included every case of inflammation, with the exception of those limited to the conjunctiva, where a cause for the disease had been found. The results shown in these tables were unexpected, especially as the cases due to sepsis must have been underestimated in the earlier years, because no search was made in many of the parts of the body which now would be investigated. For example, in the absence of bladder symptoms the urine, when it appeared to be normal to the eye and to the smell, was not examined for micro-organisms, though it might have contained many thousands to the cubic centimetre and have been the cause of the eye affection. Owing to this increase of knowledge the number of cases in which the source remained undiscovered has decreased until it is now half what it was at first, and forms 1·2 per cent. of last year's patients.

TABLE I.—*The Source and Number of the Cases (215) attributed to Sepsis.*

Lacrymal sac	1	Large gut infection, including colitis and the like	33
Antrum of Highmore	1	Kidney and bladder	4
Nasal inflammation	2	Male urethra	20
Inflamed tonsils	3	Uterus and appendages	3
Pyorrhœa	139	Skin diseases	4
"Indigestion"	2		
Appendicitis	3		

TABLE IA.—*The Number of Times that the Different Parts of the Eye were Infected in the 215 Septic Cases of Table I.*

Sclerotic	20	Retina	28
Cornea	12	Detached retina	3
Iris	87	Optic neuritis or atrophy	4
Ciliary body	79	Lens (secondary cataract)	14
Choroid	68		

TABLE II.—*The Causes to which the Other Cases (168) were attributed and their Numbers.*

Syphilis, congenital	40	Gout	23
,, acquired	35	Diabetes	12
Tubercle	27	Following acute fevers	7
Albuminuria	24		

TABLE IIA.—*The Frequency with which the Different Parts of the Eye were Affected by the Diseases in Table II.*

Sclerotic	24	Choroid	35
Cornea	47	Retina	36
Iris	25	Optic neuritis or atrophy	12
Ciliary body	4	Lens (secondary cataract)	1

On comparing the number of cases in Tables I. and II. the importance of sepsis in the causation of eye diseases is obvious, since 215 are attributed to it alone and only 168 to all the other recognised causes.

Of the 215 toxic cases 180, if the 3 tonsil cases are included, are due to alimentary toxæmia, and 139 are credited to pyorrhœa alone; hence the importance of oral hygiene. Cases due to gonococcus have been included in this table, because when these patients come to the ophthalmic surgeon they are suffering from iritis and cyclitis, due generally to an infection of the prostate, the remains of an uncured urethritis, which must be dealt with by massage and vaccines if a permanent cure is to be effected.

The remaining causes are very important, although they form such a small minority, since they indicate the sources

[1] A paper read at a special meeting of Fellows of the Royal Society of Medicine on May 5th, 1913, being a contribution to the discussion on Alimentary Toxæmia.

that must be investigated if an obscure case is to be elucidated. As examples I will instance the following:

CASE 1.—An unmarried lady consulted me in 1890 for an error of refraction, and came again in 1905-06 first with patches of choroiditis, and later with an irido-cyclitis; she was anæmic and the dentist said she had spongy gums due to tartar, which he removed; still the eye did not recover. But when in October, 1906, Sir John Bland-Sutton removed a mucous polypus from the neck of the uterus, and thereby relieved dysmenorrhœa of some years' standing, the eye quickly got well and has not relapsed.

CASE 2.—A girl came with irido-cyclitis and a septic mouth, which was treated; but the eyes got worse, and in three months the vision failed from 5/6 to 5/36. She then developed enlargement of the parotids and was sent to a physician. He found a discharge from the navel of a year's duration. Four weeks after this had been treated the vision was 5/5.

Tables IA. and IIA. will be of interest chiefly to the ophthalmic surgeon. They record the number of different parts affected; in many patients the disease attacked more than one part. In the septic group, Table IA., it will be noticed that the uveal tract is the part chiefly involved, hence the greater number of secondary cataracts; whereas in Table IIA. the sclerotic and cornea, the retina and optic nerve are more frequently affected.

Though it would appear to be obvious after seeing these tables that sepsis from pyorrhœa is an important agent in causing inflammation of the eye, nevertheless the general application of this view is not yet universally accepted. It seems incomprehensible that a surgeon, whose single aim is to avoid sepsis in his operations, can think it a matter of no importance that a person should have a chronic source of sepsis in any part of his body.

The usual objection made is that one sees very bad cases of pyorrhœa in people who say that they are enjoying the best of health and who do not complain. These objectors seem to forget that Nature begins to raise a protecting barrier the very moment that the tissues are irritated by bacterial toxins or are invaded by the bacteria themselves. If the invasion is slow enough, as is the case in pyorrhœa, the barrier is efficient and the individual does not appear to suffer. Whereas when the micro-organisms are introduced direct into the circulation there is no time for an efficient barrier to be raised. As long as the patient is in fair health the barrier is capable of doing its work; but this barrier may give way directly the general resistance of the tissues is lowered under the strain produced by some other illness or by traumatism, either surgical or accidental. Then the organisms or an excess of their toxins will be able to pass through the defending barrier and some tissue in the body may become the seat of disease. The enormous number of cases of pyorrhœa that one sees and the comparatively small number of diseases resulting therefrom shows how very efficient Nature's barrier is.

These people with bad pyorrhœa say, and presumably believe, that they are in the best of health. They are, of course, living, without knowing it, over a hidden drain, which is constantly emitting poison, in such an insidious manner, however, that they are unaware that they could possibly feel in better health. When the drain is removed they are astonished at their increased vigour and feeling of rejuvenation.

Although marked and long-standing cases of pyorrhœa are easily recognised and would be condemned as inimical to health by most surgeons, I would like to draw the attention of my colleagues to the importance of recognising even mild cases of the disease, as they also can cause central choroiditis. Quite recently an ophthalmic surgeon who recognises that pyorrhœa does cause central choroiditis sent me such a case for my opinion as to the cause. The patient, a youth of 18, had been reported upon by a dentist, who said nothing about pyorrhœa; the edges of the gums were only just pink, but there were pockets between the molars.

Some ophthalmic surgeons examine their own cases for pyorrhœa, but as this is not universal, though it is useful to be able to do so, and at times is necessary when the patient lives in the country, I have asked my son to take some coloured photographs to demonstrate the method that can be employed by surgeons who do not practise as dentists. It will be noticed that an ordinary 2-millimetre platinum loop is in contact with the edge of the gum and cannot be buried out of sight in a healthy mouth, whereas in the case of pyorrhœa the loop has sunk into a pocket out of sight; a second loop is being held on the edge of the tooth above the first to show its size.

Until the medical profession at large recognise the importance of pyorrhœa and the gravity of leaving it untreated, one cannot reasonably expect the dental profession to do so either, especially as they are being taught to treat the mouth in a way that makes it impossible to avoid creating sepsis by putting on crowns and building bars and bridges that cannot be kept clean. Until this policy is reversed and everything is done to enable the mouth to be kept aseptic, the loss of sight, and even total blindness due to pyorrhœa, will continue to occur.

Our greatest hope of reform in the treatment of the mouth lies in imitating the Zulus and some other savages who rinse out their mouths and brush their teeth with a frayed-out pencil of a special kind of wood at the end of every meal. The condition of the mouths and teeth of these savages is the ideal for civilised communities. Whereas, the condition of the mouths and teeth of neighbouring tribes, who do not follow this practice, can be seen any day in our hospital wards and out-patient department. If this habit of the Zulus were taught in early childhood and practised throughout life, there would be fewer blind eyes and much less ill-health in the world.

I am unable to express an opinion as to the merits of the various kinds of treatment for pyorrhœa that have been mentioned in this discussion, but as long as the protecting barrier is intact, ionisation and local measures should be tried. When this barrier has broken down and the eyes are affected by a serious inflammation which may destroy the sight, it is then too late to do anything except to remove the teeth at once. Before the extraction the gums should be carefully cleaned and treated with antiseptics. By doing so the amount of septic material that enters the system through the large, raw, unprotected tooth sockets is greatly reduced. Failing this precaution, the eye frequently becomes worse immediately after the extraction. If the sight is to be restored in a recent case of keratitis or of central choroiditis the affected teeth must come out on the chance that they are the cause, and if the inflammation does not subside then other possible causes must be investigated.

I wish to draw especial attention to the baneful influence that a chronic septic focus frequently exerts upon eyes that have been operated upon. The eye often becomes acutely inflamed, and remains red for a much longer period than the severity of the operation would warrant, but rapidly quietens down when the exciting cause has been removed. Although no permanent harm usually results, such a complication to the operation as this is to be avoided if possible, and therefore before I operate on any patient I always have the mouth examined and put in order if necessary, and have a search made for other septic foci should there be any indication for so doing.

I have devoted most attention to pyorrhœa because of its frequency in the present day, and consequently its importance to the ophthalmic surgeon. The comparatively small number of my cases attributed to the affections of the alimentary tract shows that either toxæmia from stasis does not affect the eyes so frequently as pyorrhœa or that the majority of patients with stasis are too ill to trouble about their sight, and when they are cured the eyes have recovered. That the alimentary tract is capable of producing central choroiditis is almost certain if one may judge by the effect produced by removing the appendix.

CASE 3.—A Dominion surgeon brought his young wife for rapid loss of central vision in one eye; with it she could only count fingers. No definite cause for the central choroiditis could be found beyond very slight pyorrhœa, which was very soon cured. Improvement did not take place, and the vision of the second eye began to fail from the same affection. In a week it had fallen from 5/5 to 5/18, during which time it had been decided to remove the appendix, which had been acutely inflamed three years before, though now it was pronounced to be quiet. It was also decided to examine the gall-bladder, large bowel, ovaries, and uterus at the operation; they were all found to be healthy, and the appendix was free from adhesions but had a bulbous end, and on being examined showed evidence of past inflammation. Just over three weeks after the operation the vision of the first affected eye was 5/9 and that of the second 5/5. Four months later the vision of each eye was normal.

The following case illustrates the fact that the exposure was the exciting cause and the predisposing cause had been present without producing any effect for more than two years. This cause consisted in a single septic sinus from an abscess of a root.

CASE 4.—A physician in good health went for a day's fishing in mid-October before beginning his duties as an examiner at the College. When walking home in the evening he felt some discomfort in one eye, and although this got worse he continued for some ten days to read

the candidates' papers with the other eye. When he came to me at the end of the examination he had a severe iritis with several adhesions; when asked where was the source of sepsis he said he had a discharge from a molar tooth which had existed for more than two years and had followed an abscess at the root. This tooth was removed within 12 hours, the iritis subsided quickly under atropine and hot bathings, and on the ninth day the eye was white and the vision normal. A week ago he told me he had had no further trouble and it was now the better eye.

Case 5 illustrates the necessity of examining the mouth one's self or getting the opinion of someone who knows what pyorrhœa is, in view of the frequent absence of recognition of the disease.

CASE 5.—The patient, aged 33, was sent to me by Dr. J. F. Bullar of Southampton, who first saw him in January, 1911, with mutton-fat keratitis punctata and vision of 5/5 in each eye. As some teeth were in a bad state Dr. Bullar made him go at once to the dentist and have all out about which there seemed any doubt. In February, 1912, when I saw him he could count fingers at 2 ft. with the right eye, and at 1 ft. with the left eye. The vitreous was too hazy for the condition of the fundus to be seen. The tension was raised and the right field of vision contracted at one part up to the fixation point. I sent him to Mr. J. G. Turner, who condemned all the teeth on account of bad pyorrhœa. Soon after they had been removed the vision began to improve, and to-day the right is 5/24 and Sn. 1·5, and the left 5/6 and Sn. 0·5. The tension is normal and the vitreous steadily clearing.

Case 6 illustrates the rapid recovery from a long-standing and severe inflammation by removing the teeth and the recurrence of the inflammation when the gum was damaged by the spicule of bone.

CASE 6.—A gentleman, aged 52, who had been sent to Harrogate after six months' treatment for a badly inflamed eye, came to see me at Mr. E. S. Steward's suggestion. I agreed with Mr. Steward that the inflammation was due to sepsis from pyorrhœa and that the treatment of the mouth should be continued. After leaving Harrogate the patient was given an unfavourable opinion as to his chance of regaining any useful sight. He came to me the same day with a badly inflamed eye that could count fingers at 3 feet only. The sclerotic, cornea, iris, and ciliary body were inflamed and the vitreous hazy. His remaining teeth, which were all very foul and septic, were removed two at a time, a plan insisted upon by his dentist.

The inflammation began to subside as the teeth were removed, and two days after the last ones came out the eye was free from injection, and he went home assured by me that the inflammation would not return; but at the end of a fortnight the eye was again very red, and at the same time a spicule of bone came through the gum. The loose piece of bone was pulled out, and next day the eye was white again, and ten weeks after the first teeth were removed the vision was normal.

In the next case there was a chronic predisposing cause, and the fatigue of manœuvres was a sufficient exciting cause. It was an early case, and the recovery was most striking.

CASE 7.—A Yeomanry officer, who thought he was in good health, though he had not felt well after breakfast for about a month, whilst out in camp with his troop noticed two days before a brown stain on the newspaper; he had read the paper earlier that morning without noticing anything unusual. On covering one eye there was a blur, the size of a shilling, involving the fixation point. He consulted Mr. Frank G. Thomas, of Swansea, who found a small patch of recent central choroiditis, but could not discover a cause, and sent him to me for my opinion. I found the vision of the bad eye to be 5/6 slowly and Sn. 0·37, the good eye seeing 5/3·5 and Sn. 0·25. In the affected yellow spot there was a small patch of choroidal disturbance. Five days later he no longer saw the brown mist, the vision had improved to 5/5 slowly, and he was feeling better. In the interval his mouth had been cleaned by removing three septic roots and treating the pyorrhœa.

The following case also illustrates the rapid recovery after treating the cause.

CASE 8.—The patient was blind in one eye from secondary glaucoma after dysentery in India many years before. The vision with the correcting glasses was 5/4 and Sn. 0·25 in the other eye, which was quite healthy, on the two occasions 4½ years apart, when I ordered a change of glasses. At the third visit he complained of seeing a blur near the fixation point; the vision was reduced to letters of 5/5 and Sn. 0·5 slowly by a small patch of recent choroiditis, just below the macula. He was edentulous, but his plates were foul; nothing else was found amiss, no diarrhœa, no remains of dysentery, but his normal-looking and smelling urine contained staphylococci, streptococci, and bacillus coli. He was put on a course of autogenous vaccine; within two weeks his sight had improved to 5/6 partly, the blur went a few days later, and within seven weeks the vision was again 5/4 and Sn. 0·25, and where the patch of choroiditis had been there was some disturbance of the uveal pigment.

The next case illustrates the length of time an untreated cause may continue to produce recurring attacks.

CASE 9.—The patient, who was married, had from the age of 12 years had many attacks of tonsillitis every August; these recurred at varying intervals for 35 years. Her tonsils were treated, and since then the attacks have ceased. Her first attack of iritis occurred when she was aged 18, and was followed by many others up to the time when the tonsils were treated. In the interval she had almost lost her sight.

The last case shows the influence of a second septic focus which came into existence after the first had been removed.

CASE 10.—A lady sent by Dr. M. Tench, of Dunmow, had episcleritis, which had begun five months before, after getting some metal polish into the eye. The pyorrhœa, which she already had, was treated, and in two months the eye was well. In 1907 the episcleritis recurred, and after it had lasted a year all the teeth were removed. The next day the eye was whiter, the general health improved, and she said "life was worth living." Recovery was rapid. In 1909 she had appendicitis, and the episcleritis returned, but her doctor reports to-day that both diseases quieted down together, neither relapsed, and she is now feeling very well.

In all these cases the septic focus was removed or treated; and beyond that nothing, save local treatment, was done for the eye.

I am convinced that senile central choroiditis is no more caused by old age than is the senile edentulous jaw; both are due to pyorrhœa, and if the mouth were looked after from youth onwards, two of the attributes of old age, *sans teeth*, *sans eyes*, would not occur.

In conclusion, I regret I have had to travel beyond the strict limits of the matter set down for discussion, but I hope I have made it clear why the ophthalmic surgeon cannot limit his inquiries if he is to rid the patient of the inflammation that is affecting the eye. How dependent he is upon the physician, the general surgeon and his *confrères*, the other specialists, is obvious. As an ophthalmic surgeon I can look forward full of hope to a future when these serious eye affections will cease to occur, because the physician has taught mothers how to feed children properly and the children how to eat properly, so as to avoid intestinal stasis. The dental surgeon has impressed upon the population at large the importance of proper mastication and the hygiene of the mouth.

Cavendish-square, W.

THE RELATIONSHIP OF THE THYROID GLAND TO ALIMENTARY TOXÆMIA.[1]

BY FREDERICK LANGMEAD, M.D. LOND., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO THE ROYAL FREE HOSPITAL; HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.; AND THE SEAMEN'S HOSPITAL, GREENWICH.

THERE is little room in this discussion for dogma. At the best, as Professor Keith has said, it is but the child of our ignorance. The scientific basis on which it is founded is altogether too meagre to sustain the weight of superstructure which those of us who are taking part in it are building upon it. Yet it must be hoped that the correlation of the views of the different speakers will both lead to a better understanding of this far-reaching condition and promote investigation into the cause of alimentary toxæmia, a territory at present almost entirely unexplored. There is little which can be said that is more than merely speculative, and perhaps that part of the subject with which I am dealing—the relationship of the thyroid gland to alimentary toxæmia—is as intangible as any.

Evidence is accumulating to show that, among the many functions of the thyroid gland, one of the most important is a protective action against circulating toxins. Complete removal of the thyroid leads not only to myxœdema—a condition which may be cured partly or completely by the administration of its internal secretion—but also, as is well known, brings with it a considerable risk from a rapidly fatal toxæmia.

An important manifestation of this toxæmia is the symptom-complex known as tetany. On very good grounds tetany is thought by many to be produced by toxins generated in the alimentary canal. It occurs in gastric dilatation where stagnation is great, and disappears if the stomach can be washed out; moreover, in such cases a substance has been isolated from the gastric contents by Bouveret and Dévic which, when injected into animals, has reproduced the clinical picture of tetany. I have described a series of cases where the same syndrome has accompanied dilatation of the colon, when stagnation in the bowel was accompanied by grey pultaceous and offensive motions, tetany followed, and was only relieved by colonic lavation. As is well known tetany in this country is most common in rickety children in whom some degree of atony and dilatation of the stomach and intestines is common; and I think most observers will agree that the tetany is almost invariably preceded by an unhealthy condition of the stools. Tetany is sometimes treated with success by the administration of thyroid extract. Tetany, then, is a condition which, on the one hand, is produced by removal of the th roid gland, and on the other is related to alimentary toxæmia. It seems, therefore, a reasonable inference that the thyroid gland, among its antitoxic functions, includes that of combating poisons absorbed from the intestinal tract.

[1] A paper read at a special meeting of Fellows of the Royal Society of Medicine on May 5th, 1913, being a contribution to the discussion on Alimentary Toxæmia.

In cases of excessive absorption of alimentary toxins we should expect some compensatory hyperplasia of the thyroid gland, and it is interesting that in the course of this discussion Mr. Arbuthnot Lane, Mr. George Rowell, and Mr. H. W. Carson all state that they have seen ileo-sigmoidostomy followed by shrinking of a goitre.

Another clinical link in the chain of evidence is afforded by rheumatoid—sometimes known as infective—arthritis. This disease is not uncommonly accompanied by enlargement of the thyroid gland, by Graves's disease, and by tetany, or a condition of the hands and feet closely resembling it. It is also regarded by many as an effect of oral sepsis or intestinal intoxication. An important support of this view is the work of Mr. Kenneth Goadby on the subject. Points which favour this contention are the almost invariable presence of oral sepsis, the beneficent effects, sometimes amounting to complete cure, which follow attention to the mouth; the improvement after lavage of the colon in some cases, and in a case recorded by Mr. Lane after ileo-sigmoidostomy.

In rheumatoid arthritis, then, we have a condition probably in many cases due to alimentary intoxication. In this condition overgrowth of the thyroid is apt to occur, and also tetany—a symptom of ineffective functioning of the thyroid gland—is found. Moreover, rheumatoid arthritis is occasionally distinctly benefited by the administration of thyroid extract.

Mr. Rupert Farrant has studied the effects of several types of clinical toxæmia upon the thyroid gland. The following changes occur: (1) the colloid becomes granular; (2) vacuolated and partially absorbed; (3) the cells become more numerous, elongated, and arranged in masses; (4) the colloid is entirely absorbed, and the walls of the vesicles become crenated and folded; and (5) the infolding and cell-increase go on to transform the vesicles into solid masses of cells. In other words, there is a reaction of the thyroid gland, with signs of hyperplasia and increased functioning, amounting in some cases to changes found in Graves's disease. This holds true for such diverse toxæmias as those of infantile diarrhœa, diphtheria, measles and broncho-pneumonia, and whooping-cough and broncho-pneumonia. A similar hyperplasia was caused in guinea-pigs by the injection of diphtheria toxin, but was mitigated if thyroid was given at the same time.

Equally conclusive inferences are to be drawn from the epoch-making researches embodied in the recent Milroy lectures of my friend, Major R. McCarrison, I.M.S., who has studied goitre as it occurs endemically in the valleys of Chitral and Gilgit in Northern India.[2] He has shown beyond dispute that thyroid enlargement can be produced experimentally in man, within a few weeks, by the administration of suspended matter separated by filtration from goitre-producing waters; and can be cured by taking thymol, one of the most powerful of gastro-intestinal antiseptics. He has shown that if the source of the toxin be avoided or removed the gland will return to normal size, unless secondary changes have occurred.

It is to be expected that, like other glands, the thyroid may undergo degenerative and retrogressive changes as the result of over-action. Normally at the menopause with the atrophy of the ovary part of its work ceases, and it is conceivable that if it has previously been subjected to undue activity its normal involution may overshoot the mark and lead to hypothyroidism and myxœdema. The last three cases of myxœdema which I have had under observation have all shown, together with severe oral sepsis and very offensive motions, anæmia of the pernicious form, which Dr. William Hunter has for so many years ascribed to lesions in the alimentary tract.

If the thyroid undergoes enlargement to combat undue toxæmia, it is reasonable to suppose that relieving it of part of its burden may cause a simple goitre to shrink, but this, of course, cannot be expected if adenomata or cysts are present. McCarrison has caused goitres to dwindle or disappear by using vaccines prepared from different forms of organisms—staphylococcus, a coliform bacillus, and a spore-bearing bacillus. The good results which he has obtained have led me to try a similar method of treatment, and I have followed out the plan which he adopted. The vaccines which I have generally employed have been prepared from the coliform bacilli of the patient's own bowel. The bacterial growth has been obtained from the fæces by culturing on Musgrave's medium, which consists of beef extract 0·5 gramme, sodium chloride 0·5 gramme, agar 20 grammes, tap water 1000 c.c., and is of an alkalinity of minus 1. This gives a growth of coliform bacilli of fairly constant character. The initial dose has been usually 125,000,000 of the dead organisms, suspended in about 1 c.c. of saline. Subsequently, if the goitre has shown signs of diminishing I have increased the dose weekly by 25,000,000 or 30,000,000. As a rule the injections have been given at weekly intervals.

It is too early to make any definite statement as to the results, but in the few cases, eight in all, treated they have been very encouraging. In one case the goitre disappeared entirely. In all the others it has diminished. As a rule, after the first injection the tumour becomes softer and, after subsequent doses, it gradually gets smaller, although occasionally periods of quiescence supervene. Two of the patients have been able to do up their neck-bands for the first time for several months after the first or second injection. A man who had taken to larger-sized collars is now wearing those of his ordinary size. One girl who had definite stridor, even when lying in bed, has now no embarrassment of breathing except slightly after exceptional exercise. All are charitable enough to say they are better and free from the symptoms which caused them to come for treatment, such as a feeling of suffocation and difficulty in swallowing and breathing.

Another effect has been that, by producing absorption of the parenchymatous enlargement, adenomata previously undetected have become obvious, and operative treatment has in this way been facilitated.

To sum up, the thyroid is a gland a useful function of which is to counteract intoxication. One of the sources of this intoxication is probably the bowel. If the intoxication be proportionately great for the gland, it undergoes hyperplasia and visible enlargement. If the amount of intoxication can be lessened the extra burden is removed and the gland diminishes. This has been done by the use of thymol and of vaccines, especially those prepared from cultures of the coliform organisms obtained from the patient's own intestinal flora.

Queen Anne-street, W.

[2] THE LANCET, Jan. 18th and 25th, and Feb. 8th, 1913.

INDICATIONS OF NERVE LESION IN CERTAIN PATHOLOGICAL CONDITIONS OF BLOOD-VESSELS.

BY T. WINGATE TODD, M.B. MANCH., F.R.C.S. ENG.,
PROFESSOR OF ANATOMY, WESTERN RESERVE UNIVERSITY, CLEVELAND, OHIO, U.S.A.

SOME time ago it became apparent that the vascular symptoms so frequently associated with the sensori-motor syndrome of the affection often laconically designated "cervical rib" were probably produced by a lesion of the nerves supplying the blood-vessels of the arm. It was then obvious that the same explanation might afford a clue to the elucidation of many other obscure conditions. It was therefore my intention to investigate those other diseases to discover, if possible, whether any such relation existed in them between nerves and blood-vessels as has been shown to be present in cervical rib. Being aware of the difficulty of the problem and the many pitfalls which it presents I have been unwilling to write anything further on the subject until I possessed more extensive data than it is possible to submit at present. The appearance, however, of two recent papers bearing on the subject of blood-vessel changes consequent on nervous lesions would seem to make it advisable to review the work of recent investigators as a preliminary to further research.

Of the two papers mentioned above the first is one by Manouélian[1] showing that damage to nerves supplying the abdominal aorta and pulmonary artery results in localised areas of arterio-sclerosis typified by degeneration of elastic fibres and smooth muscle fibres with hyperplasia of the connective tissue of the media, together with intimal proliferation. The same results have been obtained in the case of the vessels to the ear after section of the cervical sympathetic by numerous workers, among whom may be

mentioned Cehanovic [2] and Lapinski,[3] reference to whose investigations are found in von Bechterew's text-book.[4] Similar changes have been found in the vessels of the lower limb after section of the sciatic nerve by Bervoets [5] and Fraenkel.[6]

There would seem, therefore, to be ample evidence in favour of the production of a vascular lesion by damage to the nerves supplying the blood-vessel affected. For this reason it would be of service to consider the relation of nerve lesion to those diseases in which such pathological conditions are found locally in the blood-vessels. It is, of course, to be admitted that generalised vascular changes may be brought about by constitutional disorders, and also that a nerve lesion may be only one of many causes resulting in the more localised vascular changes found in some non-constitutional diseases, although, as Manouélian suggests,[1] it may be that circulating toxins act on nerve endings in the blood-vessels, and ultimately the lesion in the vessel wall is produced in the same manner in all cases—i.e., by loss of trophic action.

Much of this discussion, and especially its bearing on arterio-sclerosis and blood-vessel surgery, I have put forward in a full statement,[7] now in course of publication elsewhere. A number of disorders of uncertain origin, such as spontaneous gangrene, Raynaud's disease, intermittent dyskinesia of the arms, erythromelalgia, intermittent claudication, and thrombo-angiitis, which are so difficult of explanation, may possibly be illumined by investigation along these lines. One great difficulty in regard to the vessel changes found in some of the above diseases is the uncertainty as to whether the pathological appearance was brought about by organisation of a thrombus or by intimal proliferation. In the case of spontaneous gangrene so excellently described by Dexter and Ellis [8] the obliteration of the vessels in the spleen is said definitely to present the appearance of organisation of thrombus and not of intimal proliferation. In the kidneys of the same case, however, many of the small arterioles showed undoubted intimal proliferation. Moreover, there was sharp demarcation between areas where the vessels were normal and those in which the intimal proliferation occurred, and also in these latter areas there was generalised fibrosis.

It is plain that while syphilis may be the cause in some cases of the exhibition of Raynaud's syndrome,[9 10] it is not the cause in all cases (*vide* my instances of cervical rib [11 12]). Buerger has conclusively shown that in thrombo-angiitis the obliteration is produced by organised thrombus.[13] But whether the local obliteration is brought about by intimal proliferation, as would appear to be the case in some instances, or by organisation of thrombus, as in others, the cause for the local pathological change in the vessel, producing the proliferation or inducing the thrombus, still remains unknown.

Sachs has shown that these conditions (Raynaud's disease, &c.) are related to vascular disease,[14] but he does not indicate to what cause the vascular disease is attributable.

These various symptom-complexes seem to merge into each other in special cases and do not exhibit the well-defined differences such as were enunciated by Weir Mitchell when he first drew attention to erythromelalgia.[15] The relation of intermittent claudication to vascular disease has recently been discussed by Dr. Parkes Weber.[16] The subject in hand is full of difficulties and requires much careful work before definite conclusions can be reached. Weber takes the view of Buerger that the obliteration of the vessels was brought about by the organisation of a thrombus. In my cases of cervical rib I incline to the belief that occlusion was due to intimal proliferation. Both conclusions may be correct. But obviously both conditions may be brought about by the same cause, i.e., damage to the vessel wall. This I would suggest may be trophic in nature.

The possibilities which arise in a problem of this nature have called forth an article (the second to which reference is made at the commencement of this paper) by my friend Dr. Wood-Jones.[17] In his opinion, the production of a lesion of the sympathetic nerves supplying the vessels of the leg meets with a remarkably simple explanation. There are, however, points in anatomy and in the clinical pictures of these diseases which render it difficult to admit the accuracy of Wood-Jones's hypothesis. It has been my endeavour on former occasions to point out that in vascular disturbances associated with cervical rib the nerve damage does *not* occur where the subclavian artery crosses the rib. In the leg, when the explanation of the symptoms now put forward by Wood-Jones presented itself, I realised that injury could not occur to the femoral artery, as it crosses the pelvic wall to reach the thigh. Were this the case, the pathological change consequent on the lesion would appear first in the wall of the femoral vessels. But the symptoms appear earliest in the foot. We know from the work of Lewaschew [18] that in lower animals the sympathetic nerves to the vessels of the lower limb do not reach their distribution by passing along the femoral artery, but are contained in the sciatic and anterior crural nerves. I therefore withheld any further communication on the subject, meaning to investigate first more fully the neuro-vascular arrangements of the limbs. As, however, the explanation which at first sight seemed so obvious, but which a little investigation proved to be fallacious, has been seriously put forward, it would appear to be advisable to indicate the misconception at once. The true explanation is much more subtle than Wood-Jones would have us believe. He makes it clear that the vascular channels are plastic, while the nerve plexuses are not. But if his view of the production of a lesion to the sympathetic plexus of the femoral vessel were correct it would be essential that the sympathetic nerves were as plastic as the artery, and that the nerve path became transferred from the plexus around the sciatic artery to that around the femoral when the erect posture was assumed. It has been shown already that the basal hypothesis of sympathetic nerves to the whole vascular system of a limb passing along the main vessels is incorrect.

Although this is merely a preliminary note, I may say that the foregoing statements are fully borne out by the investigations of my colleagues, which will shortly be ready for publication. The inaccuracy of the view that sympathetic fibres make their way to the periphery along the sheaths of arteries has been emphasised in the case of pilomotor nerves by Langley. This authority also denies its truth in the case of vaso-motor fibres.[19] It is conceivable that the damage may be located in one of the great nerve trunks or in the sympathetic nerves before they reach the limb. But without more conclusive evidence than has been produced so far it would seem premature to maintain an explanation of symptoms in the lower limb which appears to be at variance with anatomical facts and is widely different from the explanation of similar symptoms in the upper limb.

Summary.—1. The mechanism of production of vascular changes in the lower limb is likely to be similar to that found in the upper limb. 2. In view of the probable causation of vascular changes in "cervical rib" by a nerve lesion, it is possible that a similar explanation may be found to hold good for certain other diseases exhibiting pathological changes of obscure origin in the blood-vessels. 3. No explanation will be found satisfactory if it depends on the unproven and improbable hypothesis that sympathetic fibres for peripheral vessels pass to their distribution along the trunks of main vessels.

Bibliography.—1. Manouélian: Recherches sur la Pathogénie des Altérations Artério-scléreuses, Annales de l'Institut Pasteur, 1913, tome xxvii. p. 15 2. Cehanovic: Der Einfluss der Durchschneidung des Halssympatheticus auf das äussere Ohr, Dissert St. Petersburg, 1897, quoted by von Bechterew (4). 3. Lapinski: Quoted by von Bechterew (4). 4. Von Bechterew: Die Funktionen der Nerven Centra, 1908, Band i., pp. 544–7. 5. Bervoets: Bijdrage tot de Kennis aan het Spontaan Gangreen-Nederl. Tijdschr. v. Geneeskunde, 1894, vol. ii., No. 5, from abstract in Centralblatt für Chirurgie, 1895, No. 10, p. 247. 6. Fraenkel: Ueber Neurotische Angiosklerose, Wiener Klinische Wochenschrift, 1896, vol. ix., pp. 147, 170. 7. Todd: Blood-vessel Changes consequent on Nervous Lesions (in course of publication). 8. Dexter and Ellis: A Study of So-called "Spontaneous Gangrene," Cleveland Medical Journal, 1910, vol. ix., p. 583. 9. Semon: Raynaud's Syndrome and Syphilis, Brit. Med. Jour., 1913, vol. i., p. 278. 10. Weber: Chronic Raynaud's Symptoms, probably on a Syphilitic Basis, British Journal of Dermatology, March, 1913. 11. Todd: The Vascular Symptoms in Cervical Rib, THE LANCET, August 10th, 1912, p. 362. 12. Idem: The Arterial Lesion in Cases of Cervical Rib, Journal of Anatomy and Physiology, 1913, vol. xlvii. 13. Buerger: Thrombo-angiitis Obliterans, American Journal of Medical Sciences, 1908, vol. cxxxvi., p. 567 (and numerous other papers). 14. Sachs: Raynaud's Disease, Erythromelalgia and the Allied Conditions in their Relation to Vascular Disease of the Extremities, American Journal of Medical Sciences, 1908, vol. cxxxvi. p. 560. 15. Weir Mitchell: Clinical Lessons on Nervous Diseases, 1897. 16. Weber: Non-syphilitic Arteritis Obliterans, THE LANCET, Jan. 18th, 1913, vol. i., p. 169. 17. Wood-Jones: Some Anatomical Considerations of the Disposition of the Sciatic Nerve and Femoral Artery, THE LANCET, March 15th, 1913, p. 752. 18. Lewaschew: Versuche über die Innervation der Hautgefässe, Archiv für die Gesammte Physiologie, Bonn, 1882, Band xxviii., pp. 431 et seq. 19. Langley: Sympathetic and Other Related Systems of Nerves, in Schäfer's Text-book of Physiology, 1900, vol. ii., p. 627.

Cleveland, Ohio, U.S.A.

REMARKS ON

ABNORMAL INTRA-ABDOMINAL DEVELOPMENTAL ADHESIONS.

BY H. M. W. GRAY, M.B., C.M. ABERD., F.R.C.S. EDIN.,
SURGEON AND LECTURER ON CLINICAL SURGERY, ROYAL INFIRMARY, ABERDEEN; SURGEON TO THE ROYAL HOSPITAL FOR SICK CHILDREN, ABERDEEN;

AND

WILLIAM ANDERSON, M.B., CH.B. ABERD., F.R.C.S. EDIN.

(*Concluded from p. 1306.*)

TREATMENT.

General remarks.—Where such "developmental adhesions" are suspected we consider that a central vertical incision is usually the most suitable, as it can be varied in height and length according to necessity. We prefer a right paracentral incision with displacement of the rectus muscle outwards. During any intra-abdominal operation, if the condition of the patient permits, we make a systematic investigation of all organs, because we believe very strongly in the theory that disease of one abdominal organ deleteriously affects the function of others, and because in many cases it is difficult to adjudicate precisely cause and effect. For example, the relationship between appendicitis and kinks and duodenal ulcer is still under discussion. If "adhesions" are tense enough to prevent perfectly free movement of the part concerned, we think it is justifiable to treat them, although there may not have been hitherto any symptoms referable to their presence. Such adhesions are potential of evil, and we think that prevention is better than cure. We have noted that these adhesions are most likely to give trouble in middle-aged people.

We do not approve of the small "button-hole" incision too often made in interval operations for appendicitis. It is futile to imagine that the lower end of the ileum can be satisfactorily examined through a tiny opening, and we feel that this should be done in every case, however definite the symptoms of appendicitis are.

We think that the operation of "short-circuiting" the bowel, and still more that of excision of the colon, is justifiable in only a very few cases, such as those in which the transverse colon is densely adherent to either the ascending or descending colon, or possibly where the poor condition of the patient does not admit of the manipulations necessary to thoroughly investigate and treat cases in the way we suggest.

An important point in deciding as to whether any of these developmental adhesions are the cause of symptoms, be they affecting gall-bladder, duodenum, ileum, or colon, is the presence of dilatation and hypertrophy in the hollow organ proximal to the affected part. For example, if the cæcum is normal there is no necessity to suspect any pathological adhesions in the colon beyond it; if it is dilated, hypertrophied, and possibly dropped, or unusually mobile, there is certain to be obstruction at some of the flexures, in the majority of cases at the hepatic.

Owing to the fact that there is considerable exposure and handling of different parts of the abdominal contents during operation the bowel is apt to remain quiescent for many hours and adhesions may form during that time as the result of the irritation. At the end of 18 to 24 hours, therefore, one's object should be to stimulate the bowel to action by the giving of food of reasonable quality and quantity if the patient is not sick, and by the administration of evacuating enemata, and such stimulants to peristalsis as eserine, pituitrin, or mild aperients. If distension is troublesome calomel in repeated small doses seems to act as well as anything. A very usual procedure on the afternoon of, at latest, the third day is to give 1 gr. of calomel every hour, from three to five doses; if the bowels have not moved by 7 A.M. next morning to give a dose of salts, and if no action by 10 A.M. to give a turpentine enema. Every second day if the bowels do not move spontaneously an aperient is given. Solid food is given as soon as patients feel inclined for it, and as convalescence progresses such foods as will help to promote peristalsis and prevent constipation are recommended.

The patients are placed in the Fowler position immediately after operation and usually remain in that position for 24 hours. Thereafter they can assume whatever position is most comfortable, and are encouraged and helped to change their position fairly frequently.

(a) *Terminal ileal membrane.*—This should be incised, as indicated in the illustration (Fig. 5) parallel to the antimesenteric border of the ileum in such a manner that the edge of the upper flap of the membrane can be stitched to the bowel at its mesenteric attachment, taking care not to injure or occlude vessels in so doing. The raw area which is exposed when the ileum is made to assume its proper position can, in many cases, be obliterated by sliding and suturing the peritoneum as shown. (Figs. 5, 6, 7.) If this cannot be done without kinking the bowel, it is apparently equally satisfactory to transplant a suitably sized piece of omentum, carefully tucking in the raw edges thereof. As a point of technique it is better, in fixing the omentum, to push the needle first through the omentum and then through the peritoneum of the bowel or mesentery. Otherwise the omental flap is difficult to retain at first in proper position as it is lifted away while the sutures are being drawn through.

(b) *Jackson's membrane* should be very freely divided between ligatures, along the outer side of the colon. Care must be taken that the colon is thoroughly freed from any bands which may limit its motility. This is especially important at the hepatic flexure which should, at the end of the proceeding, have a rounded instead of an acute curve. The mistake usually made is in not dividing the membrane freely enough or high enough. (Fig. 8.) Only in rare instances is it necessary to transplant a piece of omentum to cover raw areas.

(c) *Cæcum mobile.*—Because, in our opinion, this condition, when causing symptoms, is practically always associated with kinking at the hepatic or splenic flexures, the first indication is to free those kinks. It is then a matter for the operator to judge as to whether, in order to ensure success, he will fix the cæcum and lower part of the ascending colon or not by some such procedure as that suggested by Wilms—namely, to incise vertically and raise the dorsal parietal peritoneum of the flank in such a manner that the outer part of the cæcum and ascending colon can be inserted beneath it. The edge of the peritoneum is sutured to the anterior aspect of these organs.

(d) *Splenic kink.*—The adhesions causing this kink are treated in exactly the same way as those forming Jackson's membrane.

(e) *Meso-sigmoid adhesions.*—The treatment of these is best indicated by the accompanying illustrations (Figs. 9 and 10), which show the condition after division and suture respectively of the adhesions.[1] In some cases, owing to the irregular raw surface left after their separation or where rapidity is important owing to the condition of the patient, perfectly satisfactory results can be obtained by inserting a detached flap of omentum and fixing it in position by a few sutures.

Where adhesions bind the ascending and transverse, or transverse and descending colons very extensively together, we believe that a short-circuiting operation is preferable, and in very bad cases, in order to save time, it is probably wise to make an ileo-proctostomy where meso-sigmoid adhesions exist (see our previous paper).

(f) *Gall-bladder adhesions.*—We believe that where adhesions exist which seriously interfere with the emptying of the gall-bladder and give rise to definite symptoms, cholecystectomy should be the operation of choice. So far as we can make out, the tendency in dealing with these cases has been to make merely a cholecystostomy. Prolonged drainage brings about, no doubt, a shrinking of the walls of the gall-bladder, which, after the fistula has healed, prevents recurrence of symptoms for a variable period. The danger in such cases, whether the adhesions have been divided or not, is that sacculation and kinking will sooner or later recur, with repetition of the same severe symptoms. This actually occurred in two of our cases. Where these adhesions have seriously tucked up the pylorus or duodenum, causing gastrectasis or gastroptosis, we think that it is advisable, in order to procure more rapid convalescence and to obviate future disability, to perform a posterior gastro-enterostomy.

[1] Owing to consideration of space six illustrations have been omitted.

FIG. 5.

Sketch showing terminal ileal membrane and kink. Dotted line indicates where incision is made.

FIG. 6.

Showing raw surface left after "unrolling" the bowel subsequent to division of the membrane. Arrows indicate how the adjacent peritoneum is made to slide so as to cover the new area.

FIG. 7.

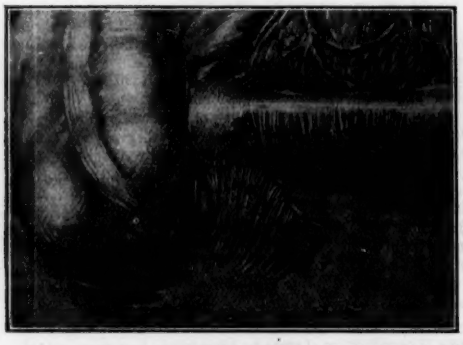


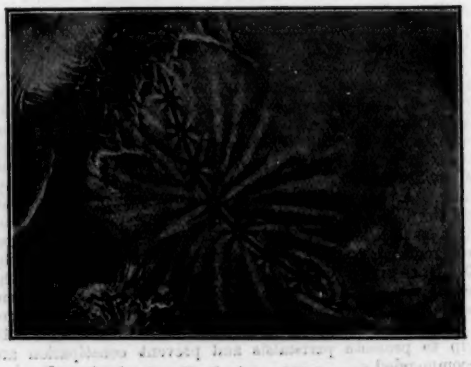
FIG. 8.

Diagrammatic representation of Jackson's membrane showing hepatic kink and "transition" from omentum. Dotted line shows where membrane is divided.

FIG. 9.

Showing appearance when adhesion is divided along the "fusion line" and the sigmoid drawn up.

FIG. 10.



Operation for sigmoid adhesion and kink completed.

(g) *Duodeno-jejunal membrane causing kinking.*—We consider that it is wise, where this membrane is the cause of obstruction sufficient to give rise to duodenal or gastric dilatation, to make a posterior gastro-enterostomy, as well as to divide the membrane.

(h) *Ovarian complications.*—In dealing with these we presuppose the acceptance of the principle that the ovaries must be preserved whenever possible. Transplantation of the ovary should be avoided if possible in young women. Plastic operations alone on the ovary itself or on the adhesions which affect it are often unsatisfactory. We consider that either or both of these operations may fail in relieving pain, and look upon division and ligature of the ovarian vessels, where they are exposed after division of the meso-sigmoid adhesions, to be a very satisfactory procedure. It has been recommended by one of us previously. Division of the ovarian vessels involves section of the accompanying nerves and therefore obliteration of afferent impressions from the ovary. If the ovary is prolapsed it can be slung up in the same way as is the testicle after excision of varicocele.

Prognosis.

The immediate result of such treatment as we have carried out has been very satisfactory. Where constipation has been the outstanding feature our patients have noticed striking improvement, in that, after return to ordinary life, the bowels have acted either spontaneously or in response to a vastly decreased dose of aperient medicine. The feeling of intestinal block which is sometimes present before operation is usually not felt, and after a time the patients get rid of all abdominal uneasiness. Griping pains may be felt occasionally for a few weeks, especially when aperients are taken, but these gradually disappear, especially when suitable exercises for stretching post-operative adhesions are systematically gone through, and diet and regulation of the bowels well attended to. Many of the patients are inclined to be hypochondriacal, and have to be encouraged to forget their discomforts and to indulge in outdoor exercises to greater extent than they have previously been inclined to do. It is better that the necessity for this should be pointed out to them before operation is undertaken. On the other hand, there are many patients who feel so well after operation, compared with what they did before, that they neglect to observe reasonable rules as to diet, regulation of the bowels, methodical exercise, and so forth, with the result that they sometimes suffer from dyspepsia and other of their old symptoms, although in a minor degree, and they are apt to be disappointed. It must be remembered that the organs affected have been so long crippled in their action that care should be taken to avoid putting undue tax upon them for a considerable period.

One of our patients, aged 60 years, died three days after operation. She had suffered from acute obstruction due to a hepatic kink from Jackson's membrane for several days before being sent for operation. The bowels were got to move quite freely afterwards, but the kidneys failed to act efficiently, and this, combined with asthenia, seemed to be the cause of death. There was no evidence of peritonitis.

In the majority of cases the permanent results have been eminently satisfactory.

Bibliography.—1. Coffey: Surgery, Gynæcology, and Obstetrics, vol. xv., p. 365. 2. Frazier: Annals of Surgery, vol. li., p. 582. 3. Blake: Ibid., vol. lv., p. 767. 4. Mayo: Ibid., vol. lxvii., p. 1. 5. Lane: Brit. Med. Jour., April 22nd, 1911; Surgery, Gynæcology, and Obstetrics, February, 1908, November, 1910, and March, 1911; THE LANCET, Dec. 2nd, 1911, p. 1540. 6. Jackson: Surgery, Gynæcology, and Obstetrics, September, 1909. 7. Smith: Anatomical Record, vol. v., p. 549. 8. Payr: Archiv für Klinische Chirurgie, vol. lxxvii., p. 671; Verhandlungen des Deutschen Kongresses für Innere Medizin, 1910. 9. Cohnheim: "Die Krankheiten des Verdauungskanals," 1908.

Other references.—Gray: Journal of Obstetrics and Gynæcology of the British Empire, July, 1909. Gray and Anderson: Developmental Adhesions Affecting the Lower End of the Ileum and Colon, Aberdeen University Press, 1912. Gerster: Annals of Surgery, vol. liv., p. 325. Pilcher: Ibid., vol. lv., p. 1. Martin: Surgery, Gynæcology, and Obstetrics, vol. xii., p. 227; Journal of American Medical Association, vol. lvii., p. 1586. Jordan: THE LANCET, Dec. 30th, 1911, p. 1824; Brit. Med. Jour., 1912, vol. i., p. 1225. Connell: Surgery, Gynæcology, and Obstetrics, vol. xiii., p. 485. Crossen: Ibid., vol. xiii., p 32. Wilms: Deutsche Medicinische Wochenschrift, 1908, No. 41; Archiv für Klinische Chirurgie, Band xcv., Heft 3, p. 558. Klemm: Ibid., Band xcv., Heft 3, p. 558. Sailer: American Journal of Medical Science, vol. cxliii., p. 157. Hofmeister: Beiträge zur Klinischen Chirurgie, Band lxxi., Heft 3, p. 832. Klose: Ibid., Band lxiii., Heft 3, p. 711. Wilkie: Brit Med. Jour., 1912, vol. ii., p. 1285. Hausmann: Deutsche Medicinische Wochenschrift, 1910, No. 42, p. 1956. Toldt: Quoted from Moynihan, "Retro-peritoneal Hernia," 1906.

CHLORETONE OVERDOSAGE.

BY W. ESSEX WYNTER, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO, AND LECTURER ON MEDICINE AT, THE MIDDLESEX HOSPITAL.

ALTHOUGH chloretone has been widely used in the last ten years, perhaps most extensively as a preventive of seasickness, no ill-effects have been attributed to its use. Having recently published in the Archives of the Middlesex Hospital a series of 100 cases of chorea satisfactorily treated with this drug, in addition to its employment in other directions, I may claim to have had considerable experience in its administration, yet nothing more untoward has ensued than an occasional erythema or desquamation of the hands—half a dozen in all—and the narcosis indicating the limit of tolerance, which has always passed off directly the drug was discontinued.

Under these circumstances the occurrence of two cases of what might almost be termed chloretone poisoning appears worthy of record. In the course of a trip to the United States a married couple in early middle life obtained 100 5 grain capsules of chloretone, 84 of which they consumed in the outward and return voyages of about six days, taking three or four a day each, which would amount to 100 grains apiece for the six-day trip. Though the weather was rough, and on the return voyage dangerously so, no seasickness occurred, so to this extent the drug fulfilled its purpose. During the three weeks in the States the patients experienced some unusual sensations, including incoördination, fulness in the head, and lack of spirits, which they attributed to the effects of the voyage and to over-heated trains and houses. These symptoms were more marked after the renewed drugging on the return voyage, and a fortnight after landing still persisted to an extent which seriously interfered with comfort and the fulfilment of business and social engagements.

When seen after this interval both exhibited contracted pupils, small tense pulse, and suppressed knee-jerks. There were incoördination and vertigo, dulness of sensation, and sense of effort in movement. Taste and smell were so much affected that meals were taken without zest, and some variable and patchy anæsthesia occurred. Mental confusion with defective concentration and memory were marked at the outset, and there was a striking susceptibility to alcohol, a glass of wine inducing intoxication, hot fluids producing a similar effect in less degree. The general mental state was one of dulness, with drowsiness by day and disturbed sleep at night. Headache occurred at first and appeared to be rendered almost intolerable by acetanilid taken as a remedy.

I attribute this persistent, and indeed cumulative, effect of the drug to its being taken too constantly—three or four times daily for six days at a time—and also to its insoluble nature in cachet, the chloretone being retained like sand in the digestive tract, and dissolving from time to time in fat or alcohol. No such experience has occurred to me with larger doses extended over longer periods when administered in solution in oil or paraffin, and I am familiar with instances where chloretone has been taken in the Atlantic voyage, and the longer one to the Cape, in cachet form without unpleasant symptoms, but then it has been used with moderation and discretion. The drug should either be given in solution, when the immediate effect is the guide to continuance, or limited to 10 grains daily with intermissions, when extended over several days.

The treatment of such cases is somewhat experimental, but considering the affinity of chloretone to chloral and the physiological manifestations displayed, these patients were given a mixture of sodium nitrite, bicarbonate of soda, and sal volatile to combat the symptoms, and liquid petroleum as a laxative, with a view to elimination of any chloretone retained in the digestive tract. In the case of the husband ordinary spirit was preferred and acted in a similar way. In the course of the next ten days recovery had taken place, so that a normal course of life could be resumed. Arterial tension relaxed, the pupils dilated, the knee-jerks returned and were rather over-active for a time, and the various unpleasant sensations disappeared.

So ended a rather unpleasant experience, the occurrence of which may be a warning against too free and persistent use of

chloretone, for harmless as any drug may be, it cannot with impunity be taken as freely as peppermint, and unless the too common practice of self-administration of conveniently prepared drugs is tempered with discretion more serious results are likely to occur.

Wimpole-street, W.

THE BACTERIOLOGY OF CHOLERA

AND ITS RELATION TO THE SPREAD OF THE DISEASE FROM THE POINT OF VIEW OF THE HEALTH OFFICER.[1]

BY J. A. TURNER, M.D. EDIN., D.P.H. CAMB.,
EXECUTIVE HEALTH OFFICER, BOMBAY MUNICIPALITY.

THE following notes may be of interest in the very difficult question of the relation of the cholera vibrio of Koch to the spread of cholera. These experiments were carried out during the recent outbreak of cholera in Bombay, June–August, 1912. From these investigations I draw the following conclusions: 1. That the comma vibrio is present in the excreta of persons dying or suffering from cholera. 2. That the vibrio persists until some time after the patient is convalescent, but not indefinitely. 3. That in times of cholera epidemic the vibrio is found in waters, wells, tanks, vessels, &c., but that it does not retain its morphological and cultural characteristic or its virulence for any length of time. 4. That an outbreak of cholera depends on: (*a*) the strength and quantity of the dose of the virus received; (*b*) the condition of the infected material which gains access to the intestine; (*c*) the physical conditions of the patient and his power of resistance; (*d*) certain climatic conditions; and (*e*) sanitary surroundings of the people, water, food, drainage and refuse disposal, and the habits of the people. 5. That when the vibrio leaves the infected person it loses its virulence in direct ratio to the time and conditions to which it is subjected.

Bacteriology.

The bacteriology of cholera has provided the subject for an enormous amount of work. Koch, who discovered the comma vibrio, visited India in 1883, and was followed by Klein and Gibbes in 1885, and later by Haffkine. There is still an enormous field for further scientific research in the bacteriology and epidemiology of cholera, which, with the improved technique of the laboratory and the opportunities now given for research work in tropical diseases, should be considered of the first importance. It is unnecessary to repeat the investigations of eminent observers and the enormous amount of work done in the bacteriology of cholera which have brought us to our present knowledge. It is accepted, rightly or wrongly, that the vibrio called the comma vibrio of Koch is associated with cholera; that the organism exists in the stools of cholera patients; that it can be isolated and can exist in the water; and that the stools of cholera patients, either directly from the body or from the clothes and discharges, can infect water and food and milk, and thereby convey the disease.

During a severe outbreak of cholera in Bombay from our investigations by daily visits of inspection to the infected houses, streets, wells, and tanks in B Ward and from bacteriological examination, there is sufficient evidence to assume that the water had been polluted directly or indirectly from cholera cases. A great deal of work has been done with the cholera vibrio, and the laboratory methods and technique are delicate and uncertain. In order to ascertain the probable cause of an outbreak, in addition to the epidemiological investigations, we examined many samples of water from wells, tanks, open vessels and tap water, and also conducted post-mortem examinations of the intestines and fæces of patients dying from the disease. From January to August 114 samples of municipal waters were examined in the laboratory; also 257 samples of other waters, 16 of milk and food-stuffs, and 18 of excreta of cholera patients. These examinations were conducted until September, and the fæces of 62 patients were examined.

During my visits of inspection my attention was drawn to the following facts: 1. To provide water for the people large earthen vessels were placed in the streets. They were filled with water by bhistis from tanks, stand-pipes, and wells. 2. During certain hours of the day and night the municipal water-supply was shut off, owing to the scarcity of supply, and bhistis were providing it to the houses. 3. Stand-pipes in the city are used as bathing places and for washing clothes and utensils. 4. Bhistis filled their mushaks at these stand-pipes immediately before, after, or, if possible, at the time people were washing their bodies and clothes. 5. The large reservoir at Pydhoni adjoining the police station is a favourite place for this purpose, and although there is a notice pointing out that these stand-pipes were not meant for washing bodies and clothes, and although it adjoins the police station, dozens of people are to be seen daily fighting for water and washing their clothes. 6. This was pointed out to the police, who temporarily stopped it. 7. Bhistis, when they cannot get a supply of water from stand-pipes, get the water from tanks, wells, at mosques, and other places, and carry the water to private houses, where it is stored in various kinds of tubs, earthenware pots, &c.

The possibility of conveying infection through water is apparent. The bhistis' mushaks during the outbreak were washed with lime and permanganate solutions. Now, supposing that water is contaminated with material from an infected house, person, or clothes, it is not unreasonable to assume the probability of the disease being spread in this way. I therefore took samples from open vessels in the streets and houses, tanks and wells in the mosques. It was found, from the result of the analyses of the many samples that were sent, that the majority of the waters were contaminated with fæcal matter, and in some instances an organism having cultural characteristics of the cholera vibrio. Although a vibrio was present in many samples, it was not until we examined a sample from a well in a mosque in Kazi Syed-street that we arrived at what appeared to be the real cholera vibrio. The well is inside the mosque, and adjoining it are a tank and a place where dead bodies are washed in the mosque. Three deaths from cholera occurred here, and many dead bodies were washed in a place close to the well and tank. Outside the mosques are galvanised vessels filled with water for the use of the passers-by.

As has been pointed out, to obtain a pure culture of the cholera vibrio in a well or tank water is not easy, specially in India, where many other vibrios exist. Water is much fouled with organic matter, and the presence of other bacteria to a certain extent smothers the cholera vibrio. Captain T. H. Gloster, I.M.S., who was deputed to study the outbreak of cholera on behalf of the Scientific Research Committee, also took a sample of the water, but did not pursue the investigation on account of innumerable bacteria present, but said that fæcal matter was present. Captain Gloster, however, made further research into this particular organism sent to him by us, and he submitted it to the many tests which must be positive, or the vibrio, according to some observers, cannot be accepted as a true cholera vibrio. He did not find that this organism agglutinated to anti-cholera serum or gave a positive reaction with Pfeiffer's test.

The bacteriological tests which were used in the municipal laboratory are as follows:—

(1) 90 c.c. of the water to be examined was put into a narrow-mouthed flask with 10 c.c. of an alkaline concentrated peptone solution and incubated for 24 hours; (2) this was then examined microscopically and after staining with carbol-fuchsin, and if vibrios were present (3) a loopful of the peptone solution was inoculated into a sterile broth culture medium; (4) a subculture was immediately made in agar slant tube; (5) further dilutions were made in another broth tube; (6) a further subculture was made into slant agar tubes and incubated for 24 hours, and then examined microscopically, as in No. 2; (7) colonies from the agar were then further subcultured on agar and subjected to other tests.

Another method—48 hours' peptone cultures were plated out on agar Petri dishes and incubated for 24 hours, and the colonies were examined. Pure cultures were then examined as follows: microscopically, stained as before, motility, cholera red reaction, nitrosoindol, Ehrlich rosindol reaction; staining for flagella; agglutination and Pfeiffer's test.

All the tests mentioned above were applied to the vibrio isolated from this well water in the municipal laboratory, and found to be positive with the exception of the Pfeiffer test. This was undertaken by Captain Gloster at the Parel Laboratory, and was found to be negative, nor did he get agglutination.

[1] Part of a paper read at the All-India Sanitary Conference, Madras.

Now if there is any organism that varies in its cultural, morphological, and pathogenic properties it is the cholera vibrio, and from the latest investigations, with the most modern bacteriological technique, it is stated that "the power of anti-cholera serum to agglutinate the vibrio is very variable," and "that because either agglutination or Pfeiffer's test is negative, it does not follow that in the presence of an epidemic a vibrio not responding to these tests should not be considered to be a cholera vibrio for all practical purposes." Under the circumstances I consider that from our investigations it is proved that this well water was infected with material from a cholera patient, and that it was possible many other wells and tanks and water vessels were infected in a similar way. This is as far as any observers have ever got in the bacteriology of the disease, and until we know more we must assume that cholera is spread in this way. I maintain that for the practical sanitarian this is enough to work upon. Given an outbreak of cholera, whether imported or indigenous, any sample of water from which a pure culture of the comma vibrio is obtained is sufficient evidence for active preventive measures. The municipal laboratory cannot, however, for obvious reasons, undertake that high standard of research which this question deserves.

I am strongly of opinion that the cholera vibrio, after it leaves the human body, undergoes such rapid modifications in water, milk, food, soil, or even on the soiled clothes and discharge of the suffering person, as to render it almost unrecognisable. The organism, fortunately for the human race, is very faintly resistant to external influences; and it is for this reason that, when an outbreak occurs, prompt sanitary measures can control it. How far, and how long, a cholera vibrio can retain its virulence, externally to the human body, and how far the other organisms in water affect it, are still subjects for further investigation. How the attenuated organism, found in water, can again retain its virulence when entering the body of its former host is what we want to know. Until then the practical sanitarian must consider all water containing a comma vibrio, in the presence of a cholera outbreak, a danger, which by all the means in his power should be attacked.

Without entering into the bacteriology of the innumerable cholera-like vibrios found in water and fæces, the presence of a comma vibrio in water during a cholera epidemic is evidence of contamination from a case of cholera. It is, as I have already pointed out, held that infected water is always the cause of the spread of cholera, and that personal contact has little to do with the spread of the disease. Now, it is impossible to analyse the evidence collected during the outbreak in Bombay without coming to the conclusion that the personal element has a great deal to do with the spread of cholera in India. Without labouring too much on the habits and customs of the people, I am strongly of opinion that the spread of cholera is greatly due to direct infection from person to person by means of the discharges, contaminated hands, food, vessels, milk and water, and flies. The filthy privy baskets, overflowing into open drains and thus soaking into subsoil or storm-water drains, the position of the water-sewer pipes and the common washing places are a constant danger at any time, but in the presence of cholera must contribute to a large extent to the circumstances favouring the spread of the disease. For example, on visiting a person suffering from the disease, he or she will be surrounded with relatives and friends handling the patient. Many will be found occupying the same room, sleeping on the floor; they all use the same privy and washing place and eat from the same vessels; the water is stored in wooden, iron, earthenware, or other vessels, in the living-room, cookroom, or *nahani*, for days together. The friends and relatives will wash the dead body and take it to the burial ground or burning ghat and afterwards wash in the nearest tank or bathing place without any disinfectant precautions. Anyone familiar with the homes of the poor can easily understand how cholera is thus spread.

Conclusions.

What we want to know is how far a person convalescent from the disease, or suffering from it in a mild unrecognised form, can be a danger to the community as a "carrier." May such a case, unknowingly, convey the infection to *nahanis*, privies, washing and drinking vessels, or the food-supply, or even a public water-supply, and thus start an outbreak in the neighbourhood?

May and June were unusually hot months. The municipal water-supply had been curtailed in B Ward. On June 10th, and some days previous, large collections of Mahomedans congregated in Mandvi, Umerkhadi, and Chuckla. Water had to be provided for these large crowds. Given, then, a few cases of cholera in these sections, it is possible that facilities were offered to the pollution of the temporary water-supply provided for the people, which was infected and thus caused the sudden rise in the incidence of the disease. As soon as the temporary supply of water was abolished, tanks and wells disinfected and cleaned, the disease began to disappear. According to the bacteriological report the cholera vibrio was only found in one tank, but as many of the others had already been cleaned or disinfected it is not to be expected that this very volatile organism would be found there.

This is nothing new in the epidemiology of cholera, as witness the fairs held in India. Large crowds of people assemble, cholera breaks out, and is checked only when the fair is over or the proper sanitary precautions have been taken to prevent the pollution of the water-supply, and other sanitary precautions observed with regard to food and cleanliness of the camps, and to the destruction of all infected material. Many persons leaving the fairs perfectly well are attacked or die on their way home or recover and return to their homes convalescent, thus becoming a focus to spread the disease elsewhere. Facilities of transit are so many that the disease may be carried hundreds of miles in a few hours. Bombay city is a very small unit of the Indian Empire, or even of the Bombay Presidency, but it is the haven of refuge for the destitute as well as the prosperous in times of famine and sickness in the neighbouring districts, and thus pays the penalty of its position. The difficulties of obtaining information from the friends and relatives of infected people, and the passive resistance to any sanitary measures, make it extremely difficult to trace cases of infectious disease or to adopt measures for their control. The indifference and carelessness on the part of the poor people to accept any advice add to the difficulties of control, while the ignorance of any measures of personal hygiene and the rooted objection to any innovation in their domestic arrangements form obstacles difficult to overcome.

The bacteriological examinations were carried out by the municipal analyst, Dr. L. Joshi, and his assistant, Mr. Pansari.

Bombay.

A CONTRIBUTION TO THE ETIOLOGY OF RHEUMATOID ARTHRITIS.

BY H. WARREN CROWE, M.D. OXON., M.R.C.S. ENG., L.R.C.P. LOND.

THE etiology of chronic arthritis has recently gained prominence from the accidental discovery by many therapeutists that the administration of vaccines for such apparently diverse conditions as post-nasal catarrh, pyorrhœa, bronchitis, gastritis, cystitis, colitis (to name those that first occur to the mind), is frequently followed by the disappearance of muscular and arthritic pains. It has been my personal experience, shared doubtless by others, that this rather remarkable by-product of induced immunisation occurs when a streptococcus has been found to be the offending organism. It seldom occurs with any other microbe, save only in that form of chronic arthritis which is most commonly designated rheumatoid arthritis. Here vaccines prepared from bacillus coli, staphylococcus aureus, as well as streptococci isolated from some local area of infection, have in some cases given relief to this otherwise intractable malady.

A paper by Dr. R. McLeod Veitch,[1] of Harrogate, illustrates remarkably clearly this point in regard to rheumatoid arthritis. Where he finds a localised bacterial focus vaccines give relief to the general condition; where no focus is found a variety of similar vaccines produce no effect whatever. On the face of it, then, one would say that rheumatoid arthritis is a disease which may be produced by a variety of infections. It may be so. At the same time there is at least one other possible explanation; for example, there might be a primary organism, and the successful vaccine

[1] Journal of Vaccine Therapy, vol. i., 1912, p. 269.

therapy above quoted might have been directed against secondary infections. That this need not be regarded as impossible may be shown by analogy; tuberculous infections have been found to disappear under streptococcal and other "secondary" vaccines.

For some years it has been my practice to examine the urine in all cases, when possible, of arthritis, neuritis, and muscular rheumatism, and very frequently when a local bacterial nidus exists the same germ is found in the urine. During the course of this systematic investigation various interesting facts have emerged, and my earlier results were detailed in the first part of a paper read in March, 1912, before the Pathological Section of the Royal Society of Medicine,[2] when attention was drawn to the occurrence in the urine of certain streptococci in cases of rheumatism associated with neurasthenic symptoms, and the beneficial effect of vaccines described. Six months later Mr. F. W. Brook[3] published a series of similar and equally successful cases treated by vaccines prepared from organisms, many of which were apparently identical with mine, though isolated from the fæces. Dr. John Donald, of Liskeard, drew my attention to the valuable confirmation of my work afforded by Mr. Brook's paper, and in a letter to a medical journal a fortnight later he asked the following very pertinent question: "Would not a microscopical and cultural examination of the urine, without serological observations, have revealed as much in these cases of Mr. Brook's, and given the same clue to treatment?" Not only is it simpler, but the plain bacteriologist rapidly learns to discern the offending germ in the urine with a fair degree of certainty, whilst in the case of fæces, as a glance at the work done by Dr. J. W. H. Eyre for Mr. Brook will show, a very high degree of technical skill and knowledge, not to speak of time, may be required to select the proper organism for attack.

Technique.

For practical purposes, then, the urine is to be preferred, and fæcal analysis need only be requisitioned if the other fail, a very infrequent occurrence. It is also unnecessary in most cases to catheterise, for when the patient (male or female) has sufficient intelligence to follow out easy instructions Heim's method is excellent, and urine free from contamination can be obtained.[4] It is even simpler and equally effective to provide the patient with a small sterile specimen tube, the mouth of which is held for a moment in the stream of urine towards the end of micturition.

The technique for examination of the urine thus obtained is simple. After centrifuging, the deposit is examined microscopically and planted out conveniently to the number of germs seen, if any, on a blood agar plate. After 48 hours all varieties distinguished are subcultured on blood agar, and later, or simultaneously, differentiated by means of Fleming's neutral red egg medium.[5] A gross infection is seldom obtained. On the contrary, the finding of even a single colony of a recognised pathogenic germ suffices, when the urine can be relied upon, to determine the infection.

Differentiation of the Organisms.

During the more recent investigations the two groups of organisms described as diploid streptococci and staphyloid cocci respectively in my paper of last March have been subdivided, the former into three varieties of streptococci, which I will not here describe, as they are not really germane to the matter in hand; the latter into some six distinctly different organisms. The following quotation from that communication gives the points which are common to all of them:—

> The staphyloid coccus occurs as a perfectly round coccus in short chains or pairs, Gram-positive, but when subcultured tends to decolourise and take on the contrast tint. It is non-capsulated. When growing on artificial media it varies greatly in size from 0·5μ to 2 or 3μ. The growth on agar after egg culture is much more rapid and far denser than any of the other organisms here described. Twenty-four hours' growth on agar reveals convex, translucent, glistening colonies. On gelatin slopes this organism, unlike the streptococcus, shows visible growth after 24 hours. Minute convex colonies, smooth edges and glistening surfaces. No liquefaction. In gelatin stab cultures, after 24 hours, very minute creamy points may be seen the whole length of the stab. Growth on nasgar is free, the colonies having a milky opacity..... On neutral red egg growth is remarkable, and the characteristic colonies obtain dimensions of 0·5 mm. after 24 hours. Under the microscope a great variety of forms are seen, some large and round, a few oval. Involution forms are numerous. Grows at room temperature..... Blood is hæmolysed where the colonies are dense, but no hæmolysis occurs around scattered colonies..... Colonies on neutral red egg medium, ... round, raised, rose-red..... There is no reduction of neutral red in the vicinity.

It should be noted, however, that some of these organisms liquefy gelatin, and also that the degree of hæmolysis varies, further that the arrangement of the cocci on a slide resembles in some degree that of the ordinary staphylococcus. The distinguishing points are as follows:

Staphyloid coccus A appears on Fleming's medium first as a rose-red colony, which gradually increases in size, and deeply indents the medium. It then spreads out, and assumes the appearance of a flattened plate. On subculture it maintains these characteristics and does not alter in colour. Its other peculiarities are that blood is slightly hæmolysed, even round single colonies; that litmus milk is turned acid, clotted, and usually decolourised; and that gelatin is liquefied very slowly, or not at all. Maltose and lactose are reduced, but not mannite; glycerine may or may not be. The shape and colour of the colony on neutral red egg medium are, however, the two points on which it is perfectly safe to found a diagnosis.

Staphyloid coccus B, a somewhat rare coccus, which has been found in certain rheumatic conditions, commences as a very flat yellow colony with a papilla in the centre. At this stage it resembles a broad-brimmed hat. After further growth the centre of the colony turns rose-red, and this colour gradually extends to the edge of the colony. The medium, however, is never indented, and in this way subcultures can be distinguished from the before-mentioned organism. Otherwise in subcultures it is difficult to distinguish the two, because the colonies come up rose-red at once, and the broad-brimmed hat appearance does not recur. This organism does not affect milk.

Staphyloid coccus C.—This is an organism which is also extremely similar to the coccus first described in that it produces a rose-red colony, but during growth clearly defined rings, which appear on the surface of the colony, serve to distinguish it. Milk is but slightly affected, if at all; lactose, mannite, and maltose are not affected. Glycerine sometimes is, and sometimes not.

Staphyloid cocci D and E may be distinguished from the former three by the fact that their colonies are but faintly rose-red, or may be quite white. D produces a smooth colony, whereas E produces a ringed colony, and neither of them indents the medium.

Staphyloid coccus F may, or may not, be identical with B. Cultures are rather different, for no rose-red colour develops, except where the colonies are massed together.

Identity of Staphyloid Coccus A.

A so-called staphylococcus of peculiar type found commonly in the urine is, of course, well-known to laboratory workers, but it seems that in general it has too hastily been labelled and discarded as of no importance. The only recent statistics of organisms found in urine which I have been able to discover are those of Mr. K. Goadby,[6] which show a considerable proportion of staphylococcus albus. It is noteworthy that the greater the joint involvement the larger the proportion of staphylococci. Now, true staphylococcus albus is decidedly rare in urine, but, as my statistics show, staphyloid coccus A is very common in the diseased conditions dealt with by Mr. Goadby, and the more the joints are involved the commoner becomes this organism; so I infer that where he writes staphylococcus albus, I am justified in believing the organism to be my staphyloid coccus A. The two, however, are easily distinguished on neutral red egg medium, for although staphylococcus pyogenes albus produces a rose-red indenting colony, the colour rapidly gives way to a vivid orange.

Staphyloid coccus A, then, is probably the commonest so-called staphylococcus found in urine. It closely resembles, and may certainly be a member of, that group of germs called generically micrococcus epidermidis albus. Nevertheless, I prefer, in view of the extreme importance which I hope to show attaches to it, to distinguish it from the staphylococci by the name mentioned until it can be assigned some more definitive title.

---

[2] Proceedings of the Royal Society of Medicine (Section of Pathology), vol. v., p. 159.

[3] Brit. Med. Jour., 1912, vol. ii., p. 964.

[4] Heim's Bacteriology, 1911, p. 389.

[5] Proceedings of the Royal Society of Medicine, Section of Pathology, vol. vi., p. 117.

[6] Proceedings of the Royal Society of Medicine (Balneological and Climatological Section), February, 1913, pp. 47, 48.

Incidence of the Staphyloid Coccus A.

In presenting reliable data on this point it is necessary to exclude all cases examined prior to the complete differentiation of this organism from the other members of the group. I can only therefore employ figures for the last nine months or so.

Table of Organisms Cultured from Urine.

In—	Staphyloid coccus A.	Strepto-cocci.	Bacillus coli.
14 cases of rheumatism	5	8	0
3 cases of neuritis	2	3	0
22 cases of rheumatoid arthritis ...	14	6	5

In regard to rheumatoid arthritis and staphyloid coccus A the proportion 14 to 22 is probably considerably understating the case, because three of the remaining cases gave marked positive agglutination, and two more reacted in such a way to a vaccine of this organism that it was distinctly borne in on one that staphyloid coccus A was pathogenic in those individuals. If these additional figures are added, we find that out of 22 cases 19 were almost certainly infected by staphyloid coccus A.

Treatment.

In the following article Dr. A. Bertram Soltau gives his impressions of the treatment of rheumatoid arthritis by vaccines, both autogenous and stock. The most valuable of the latter turned out to be one prepared from two strains of staphyloid coccus A, each isolated from a case of acute rheumatoid arthritis following parturition, in which I found the organism present in large numbers and in pure culture in the urine. Under this heading, then, I will only urge extreme caution in the use of staphyloid vaccine, if success is to be achieved in arthritis. Even a dose of 500,000 may cause a most unpleasant reaction, and until the urine is free from organisms, more than 5,000,000 can seldom be given. It is for this reason more than any other that it seems to me important for the present to keep a title which will distinguish this germ from the staphylococci.

In conclusion, one must admit that there is a long gap between describing an organism present in a disease and proving a direct pathological connexion; only prolonged experience and careful investigation will lead to the truth. I trust, however, that I have made good this point: that a certain organism, styled temporarily for the purposes of this paper "staphyloid coccus A," occurs with remarkable frequency in rheumatoid arthritis. Is the connexion between them causal, or is it merely casual?

Yelverton, Devon.

A NOTE ON

THE USE OF VACCINES IN THE TREATMENT OF RHEUMATOID ARTHRITIS.

BY A. BERTRAM SOLTAU, M.D. LOND., F.R.C.S. ENG.,
PHYSICIAN, SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

THE treatment of rheumatoid arthritis has presented so many difficulties, and has so frequently been followed by failure or by relapse, inducing a feeling of hopelessness in both patient and practitioner, that any therapeutic measure which gives more hopeful results would be welcome.

Many investigators have been searching for a bacterial cause for the disease, with its possibilities of vaccine therapy, and some encouraging cases have, from time to time, been reported. The variety of organisms which have been isolated suggests that the arthritic lesions are due to many different microbic agencies, and the absence of any constant etiological factor has been the obstacle to any marked advance in treatment.

In the preceding article Dr. H. Warren Crowe describes several "staphyloid" cocci ("staphyloid" on account of their resemblance to staphylococci), one of which, staphyloid coccus A, he has found to recur with remarkable frequency in cases of rheumatoid arthritis. As I have had the opportunity of using the vaccine prepared therefrom in a considerable number of cases a brief account of the results obtained may prove of interest.

A certain proportion of the cases showed a single infection with coccus A, whilst in the others, which formed the majority, the infection was mixed, the other co-existing organism being frequently a streptococcus, and occasionally bacillus coli communis. In the cases where a mixed infection was present the clinical course followed has been to treat the patient first with a vaccine prepared from what we have regarded as the secondary organism, streptococcus, bacillus coli, &c. It is noteworthy that whilst the joint condition had been thereby ameliorated and the patient has experienced a sense of improved well-being, a complete arrest of the articular lesions has not been obtained by the use alone of the vaccine of the secondary organism, but the diminution of the latter, as proved by cultural tests on the urine, has paved the way for the use of coccus A vaccine. The subsequent employment of the latter has then been followed by a very marked improvement in the arthritis, amounting in some cases to an apparent cure. The word "apparent" is used advisedly, because the lapse of time is yet far too short to allow of any dogmatic statements as to cure.

As regards the type of case treated, no attempt has been made at selection, and the degree of infection has varied considerably, from cases of long standing in which a large number of joints were affected and osseous deformity was present to a considerable degree, to those in which the infection was in an early stage, little more than neuritic pain in the limbs with slight swelling in a few joints being complained of. In two cases the disease was following an acute pyrexial course.

Of the cases being treated by coccus A vaccine nine are so far advanced that it is possible to form some idea as to their progress.

The system employed has been, in the main, as follows. A cultural investigation of the urine is made, and if coccus A be found in single infection a stock vaccine is now employed. This was originally prepared from two strains, each obtained from an advanced case of arthritis following parturition. As remarked before, in mixed infections the allied organisms are first attacked by autogenous vaccines, coccus A being used either concurrently or subsequently. The question of dosage has been a most difficult one to determine, owing to the marked reaction which sometimes follows even minute doses, such as 500,000. In one case the dose had to be reduced to one of 150,000 at first. It has therefore been necessary to proceed with great caution, and my usual practice has been to start with 500,000, raising the subsequent doses by very small increments of 500,000 or even less. Even then it has not always been easy to prevent excessive reactions, and at times a reversion to the earlier minute doses, after reaching a dose of 3,000,000 or 4,000,000, has been necessitated. The reaction has usually been an exacerbation of joint pains and swelling, with slight rise of temperature. The injections are usually made at weekly intervals, but here again each case has required treatment to be modified by its particular reaction, and one obstinate case only began to improve when the period between the injections was reduced to five days. In two cases, where reaction was so marked as to prevent any real advance, a great help was experienced by the injection of ½ c.c. of 4 per cent. solution of eucaine lactate in carbolised saline with each dose of vaccine.

The clinical course which the cases have followed has been on the whole a similar one, though the degree of rapidity of progress has varied within wide limits. The first favourable symptom has been the diminution of nocturnal pain, in itself no small advance, as it has permitted more sleep and an improvement in general health. The neuritic pain so often complained of has usually been relieved more rapidly than the articular pain. This raises an interesting etiological question as to the actual way in which the infection of rheumatoid arthritis acts. The theory so long maintained that rheumatoid arthritis was a disease of nervous origin, as evidenced by the glossy skin, the trophic nails, and the articular changes so similar to those of the neural arthropathies, may be coördinated to the microbic theory by regarding the infection as primarily one of the peripheral nerves, so leading to trophic changes in the joints and other structures. In two cases where the sole complaint was that of pain in the limbs without any joint changes the isolation by Dr. Crowe of coccus A and the employment of the vaccine was followed by rapid improvement. Both cases were pursuing a maintained pyrexial course, one being so severe as to resemble acute febrile polyneuritis. This is suggestive as the possible line of infection which ultimately

develops into the typical rheumatoid arthritis, for an antecedent history of non-articular, and often diffuse, pain is usually obtainable in all cases of the latter disease.

Following the diminution of pain, the most noticeable feature has been the gradual relaxation of the joints. In fact, the complaint was made by several patients that they felt so much weaker. It has then been found that the stiffened joints have gained in flexibility and range of movement, and that the muscles, atrophied by long disuse, have been unable to cope with the increased work thrown upon them by the yielding of thickened periarticular structures. At this stage very gentle massage of muscles, avoiding the joints so as to prevent uncontrolled auto-inoculation, has been found helpful.

The actual joint swellings have been the last to disappear, and, of course, where destruction of bone and osteophytic growth have taken place no alteration can be expected, the diminution of swelling being confined to the thickened ligaments and capsules. Concurrently, the glossiness of the skin has disappeared. In one case, No. 1 in the series, there was a remarkable development of subcutaneous nodules, situated over the pressure points of the large joints and along the tendons, both flexor and extensor, of both forearms. The disappearance of these nodules during treatment was most rapid and complete. Finally, in those cases where a complete arrest of the disease appears to have been attained there is beyond the permanent bony changes, if any, with their mechanical limitation of movement, entire freedom from pain and restoration of articular function. In these cases, however, a regular dose of vaccine at monthly intervals is still being administered.

Details of certain of the cases are as follows:—

CASE 1.—Female, aged 34. The illness commenced over three years ago, about four months after a confinement, her third, which was reported to have been normal. When first seen, two years later, there was involvement of numerous joints. All the small joints of the hands and feet were swollen and tender, as also were the wrists, elbows, knees, hips, and ankles. The fixation of the small joints was extreme, so that the fingers could only be flexed sufficiently to enclose a moderately sized apple. The large joints grated on movement and the knees were distended with fluid, and the general rigidity was so great that it was impossible for the patient to get into or out of a bath or her bed without assistance. Nocturnal pain was very distressing, and the wasting and anæmia were so pronounced as to suggest a general septic infection. Coccus A was isolated in pure culture, and vaccine treatment was commenced in June, 1912. Progress was slow, but the pain steadily diminished and the rigidity lessened. Walking a distance of several miles became possible, and by October the fingers could be flexed to touch the palms. At this time, as the patient described it, "there was, following an injection, reaction with increased pain and stiffness in the legs. This was followed by slow relaxing of the joints, which in turn resulted in intense weakness of the legs, which caused great difficulty in going upstairs." On Oct. 8th a further dose was given, resulting in "a certain improvement in above condition, beginning on the evening of 8th inst. After the 10th inst. a marked feeling of relief, and some flexibility everywhere. Occasional short intervals of 'freedom from pain' the first time for two and a half years." Unhappily, towards the end of the month the patient developed an attack of influenza, then prevalent in her household, to which she succumbed.

CASE 2.—Female aged 39. There was a history of pain for over two years, in the shoulders, hands, and thighs. The pain was mainly neuritic, but the interphalangeal joints were swollen and stiff. The urine grew coccus A in pure culture, and vaccine treatment was commenced in July, 1912, and was persisted with until the end of the year. At first there were severe reactions, so that minimal doses of 500,000 were necessary. In September the pain began materially to decrease and the stiffness disappeared, so that full movement of the fingers and shoulders was regained. In October the urine was found to be sterile. Progress was steady, and by the end of the year the patient was practically well. She still continues to receive a monthly dose of 10,000,000.

CASE 3.—Female aged 47. The first "rheumatic" manifestation was an acute attack of lumbago 18 years ago, which confined the patient to bed for two months. Since then she has had periodic pain, and has never been free for more than a month or two at a time. The pain has been mainly in the hips and thighs, and occasionally also has affected the shoulders and hands. When first seen, nearly two years ago, there was such rigidity of the hip-joints that walking was difficult and the legs could barely be abducted. Nocturnal pain and stiffness were considerable, so that "for hours she lay awake unable to turn over." Spa treatment and other recognised methods did little to relieve her. In January, 1913, the urine was cultured and a mixed infection of bacillus coli and coccus A was found. A vaccine of the former organism was first employed, and towards the end of February coccus A was commenced. Her blood at this time showed a very marked complement deviation to the latter organism. At the time of writing her condition has so far improved that there is no pain in the shoulders, and only "an occasional twinge" in the hands. Walking is easier and she has discarded her sticks. A dosage of 7,000,000 has been reached, but any increase beyond that causes a severe reaction, and she has, like others, done better with persistent small doses which give better results than attempts at increase of dose. The interval between doses, in her case, has been shortened to every sixth day, which gives the best effect.

CASE 4.—Female, aged 38, first seen in September, 1912. The arthritis commenced about 18 months previously. In November, 1911, she underwent a course of treatment at Bath which resulted in temporary alleviation, lasting for six months, when she relapsed. In September she was seriously crippled, the hands, knees, and hips being so involved that she was practically helpless. There was great œdema over the feet and she was in continual pain. Coccus A was present in pure culture, and treatment was commenced forthwith. At present progress has been made so far that practically all the œdema has gone and the swelling in all the joints has diminished. She can walk with comparative freedom, and rests well at night. She is still far from being cured, but the improvement has given her fresh hope.

The above four cases are fair examples of the others which are under treatment. In all cases, when the vaccines are being employed, all so-called specific rheumatic treatment has been abandoned, so that the results should not be confused.

Conclusions.—No claim is made in this report that the sole pathogenic cause of rheumatoid arthritis is the coccus A. A vast amount of work awaits the bacteriologists before any definite conclusions can be arrived at, and it is probable that the flora of arthritis will ultimately be found to be widely varied. On the other hand, the remarkable frequency with which this particular organism has been found to occur in the disease, and the confirmation of its presence by the control tests of agglutination and complement deviation which Dr. Crowe has carried out, cannot be ignored. The disappearance of the organism from the urine as improvement was effected by vaccines, and its reappearance in greatly increased numbers when as a result of exercise excessive auto-inoculation leading to increased pain and stiffness occurred, are also facts to note. Lastly, the clinical improvement in cases treated by a vaccine prepared from it is most encouraging and hopeful for further developments.

It is hoped that the publication of this account of the first cases to be so treated, whilst incomplete, may yet be of interest and may lead to wider attention being given to a possible solution of one of the problems of treatment.

Plymouth.

A CASE OF VOLKMANN'S ISCHÆMIC CONTRACTURE OF THE HAND.

BY G. DE SWIETOCHOWSKI, M.D. MUNICH, M.R.C.S. ENG.,

CLINICAL ASSISTANT, ELECTRICAL AND MASSAGE DEPARTMENT, KING'S COLLEGE HOSPITAL.

A GIRL, 12 years old, was brought to Paddington Green Children's Hospital last summer by her mother, who gave the following history of this case. Four years ago the girl had a fall, injuring her left elbow. She was taken to one of the general hospitals in London where a fracture was diagnosed and a splint applied. The next day the left hand was swollen, was very painful, and the girl had lost her power over the fingers. She was taken in, and stayed there for six weeks, but the hand did not improve. She was told that nothing more could be done for her and dismissed. As I was treating her tiny sister, an infant, for pes equinovarus, her mother thought something might be done for the elder girl's hand as well.

Fig. 1 shows the condition of the hand when first seen by me. It represents the position which the hand assumed when entirely unsupported. The wrist flexed ad maximum, the metacarpo-phalangeal joints hyperextended, forming an angle of 120°. Both interphalangeal joints like the wrist flexed to the highest possible degree. The palm was convex instead of being concave. The heads of the metacarpals were distinctly projecting on the palmar surface. The whole hand was much smaller than its fellow, its muscles wasted. The forearm was in a similar condition. The musculature, or, better, what was left of it round the elbow, felt hard. Slight active movements, just sufficient to prove that the muscles were not completely paralysed, were present in the radio-carpal and in all the finger-joints. The elbow was more under the control of the patient, as she could bend and stretch it to about 140°. Passive movements were slightly better; it was possible to bend the hyperextended metacarpo-phalangeal joints so as to form an angle of 180°—that is, to form a straight line, which means the limit of extension with the majority of people. The wrist could not even be stretched so far as to become level with the forearm. Passive movements of the elbow were practically of the same range as the active ones. The knuckles of the left hand were poorly developed as compared

with the right (normal) one. There were no sensory disturbances. Most of the muscles reacted to faradism, though very feebly. The extensors of the wrist responded less than the

FIG. 1.

From a photograph of the patient before treatment.

flexors; extensors of the fingers more than their flexors. The finer difference between flexor digitorum sublimis and profundus could not be found out. Pronation and supination possible though limited.

The whole examination was attended with many difficulties on account of the nervous condition of the patient, who for a long time resisted the testing of her muscles. A radiograph taken in the course of the present treatment proved an old fracture of the radius about 2 inches below the elbow and of the lower end of the humerus.

This description will suffice to show that this case is an instance of an ischæmic contracture in which the extensors of the wrist and flexors of the fingers suffered most of all; shortening of their antagonists, the flexors of the wrist and extensors of the fingers, explains the deformity of the hand: flexion of the wrist and hyperextension of the fingers.

The treatment was directed first towards overcoming the contraction of the antagonists, thus giving those muscles which suffered worst a chance to recover, and then towards strengthening them. Of course, these two principles were combined, although so long as the stronger muscles were shortened there was practically no possibility of improvement in the weaker ones.

The first part of the treatment was carried out by means of passive movements, massage, and various splints, their shape and application being altered practically every week. I started with an ordinary splint applied to the palmar surface of the hand and forearm reaching as far down as the lower palmar crease and as far up as the elbow, leaving this joint free. During the first months I reapplied the splint two to three times a week, and each time I gave passive movements in order to stretch the contracted muscles and their tendons and to loosen stiff ligaments and joint capsules. Once I tried to stretch these structures under gas, hoping thus to overcome the resistance more easily; but I soon found that it would have been easier to dislocate the small bones than to stretch the tendons, and therefore I gave up the idea of any forcible action. The Latin proverb, "Gutta cavat lapidem non vi, sed saepe cadendo," here held good. At each sitting I gave massage alternating with movements. Occasionally I administered a galvanic bath, but with great difficulty. The movements had to be carried out very gently because the patient, correctly or incorrectly, complained of great tenderness of the hand. It is true that the integument of this hand was so thin and delicate that the splint had to be applied with the greatest care, as even a slight pressure gave rise to sores, especially on the palm over the heads of the metacarpals. I tried to prevent this by wrapping up the hand in a piece of lint with spread boracic ointment before putting on the well-padded splint. However, in course of time the nutrition of the skin improved simultaneously with the deeper structures, so that now it can stand any pressure with impunity.

Since November last year the patient has been attending King's College Hospital, where she has been able to receive treatment more regularly—that is, four to five times a week instead of two to three times as before. This had a striking effect: not only did the passive movements improve but also, and what is of more importance, the active movements began to progress rapidly. The muscles began to react to faradism more promptly, with, however, the exception of the flexor digitorum profundus. I applied every day Bier's elastic bandage for about 15 to 20 minutes before the massage and exercises started. This seemed to help in softening all tissues, filling their vessels more abundantly with blood. This procedure was, however, apparently a little painful, or rather felt "queer" as the patient declared. Therefore I substituted active hyperæmia for the passive hyperæmia, giving her every day a hot arm bath before any manipulations were commenced. This proved to be pleasanter and equally beneficial. I have also found elastic extension of great service as applied to the fingers by means of rubber tubes.

Fig. 2 shows the present condition of the hand. The patient can extend her wrist actively and within the possible range. The hyperextension of the metacarpo-phalangeal joints has been overcome, and the patient can flex her fingers so far as to be enabled to hold light objects and to shake hands. A complete extension of the fingers (180°) is not possible yet because of the relative hypertrophy

FIG. 2.

From a photograph of the patient nine months later.

of the knuckles on the dorsal aspect of the phalanges resulting from their atrophy on their palmar aspect due to the flexed position of the fingers during four years, so

important for the formation of the epiphyses of bones (8–12). The hand has now less tendency to return to the wrong position when left alone for a few days than it had a few months ago. However, treatment is still being carried out on similar lines; the splint applied every day, and massage continued so as to give the young articular cartilages as well as the muscles a chance to undergo such transformations as are necessary in order to restore the original conditions of the joints.[1]

The results are so far extremely encouraging, and there is good reason to hope that within a few months the full vitality of the flexor digitorum profundus will be restored, and with it full use of the hand. The duration of the treatment would have been, of course, shortened if there had not been four years' neglect, and if treatment had been carried out every day from the beginning.

I am greatly obliged to Mr. Arthur Edmunds, who kindly entrusted to me the treatment of this case and permits its publication.

New Cavendish-street, W.

A CASE OF GONORRHŒAL WARTS ON THE FACE SUCCESSFULLY TREATED BY A VACCINE.

BY W. E. M. ARMSTRONG, M.A., M.D. DUB.,

ASSISTANT IN THE INOCULATION DEPARTMENT, ST. MARY'S HOSPITAL, PADDINGTON, W.

THE patient, a man aged 26 years, was sent to me on Feb. 5th, 1913, to be treated for "Acne." His left malar eminence was then covered to the extent of about 20 square centimetres with a crop of closely set warty growths. Most of these tended to be pedunculated, and had thick, fleshy stalks, surmounted by an upper dry, horny layer, which was friable and easily detached, leaving behind a succulent and copiously bleeding stump. The general picture presented was obviously not acne, and was, perhaps, rather more suggestive of a localised molluscum fibrosum than of anything else that I had seen. The condition was also present to a very slight extent over the region of the right malar bone, and there were also a few warts around the openings of the mouth and nose. The disease was of 11 months' duration, and had been treated with local applications, and even with surgical removal, without any improvement being effected.

The diagnosis was suggested by the clinical resemblance of the facial outgrowths to those warts which are seen fairly commonly close to the primary focus in gonorrhœal affections. But it is more than likely that this resemblance would not have struck me had it not been for the remarkable history given quite freely and without any leading questions by the patient himself.

The history was as follows. Twelve months ago he had an attack of acute gonorrhœal urethritis. Rheumatic pains in various places followed and very acute conjunctivitis also supervened. The patient describes his eyelids during this period as being almost turned inside out; the secretion overflowed on to his cheek. When the more acute symptoms had disappeared under treatment he was still pale and ill, and used very frequently to rub and squeeze his face with his hand in order, as he said, to "try to bring back some colour into it before going to see anyone with whom he had business to transact." In this particular gesture the fingers of his right hand always bore heavily upon his left malar eminence, and may thus have been responsible for inoculating that part of his skin with the infectious material.

From the foregoing account it will be plain that from the clinical standpoint the chain of evidence in favour of a diagnosis of gonorrhœal warts was fairly complete. But on account of the rarity of the disease it was thought well to try to clinch the diagnosis by the employment of modern methods of research. Accordingly, since actual gonococci could not be demonstrated in films nor yet grown in cultures taken from the lesion, it was determined to examine the blood stream for evidence of gonococcal infection. This was done, and the site of infection localised in the face by the following device. A bandage was put about the patient's neck and tightened so as to flush and dilate all the vessels of the skin of the face. He was then given a basin of hot water and a sponge and directed to bathe the site of the lesion continuously with the water for the space of about half an hour. The bandage was then removed. A specimen of blood had been taken before this bandage had been put on, another specimen was taken an hour after it had been removed, another six hours after this, and a fourth and last specimen was taken on the following day. These specimens were all now collected and examined at one time with regard to their opsonic powers towards the gonococcus microbe. The resulting opsonic indices stated in the order in which the bloods had been taken from the patient's finger were 0·90, 0·59, 0·70, and 1·20 respectively. The negative phase followed by the positive phase which these figures demonstrate can only have been due to gonococcal poison having been washed into the general blood stream by the congestion and flushing out of the lesion brought about artificially by the bandaging and bathing, and so this serum reaction may be taken as conclusive evidence that the lesion was truly of gonorrhœal origin. The Wassermann reaction, I should have said, was negative.

Treatment was commenced by the injection of a dose of 1,000,000 of gonococcus vaccine. The result was immediate and remarkable. Within one hour of administration the lesion became itchy, irritable, and inflamed. The following day a sort of dry gangrene seemed to have set in, many of the warts had become as it were mummified, and could be rubbed off the face like so much sand. This effect with so small a dose was in itself diagnostic. Larger doses were given at the proper intervals, and five weeks after the commencement of the treatment no trace of the disease was to be found.

This case seems to me to be of interest for the following reasons: first, because of the rarity of the disease upon the face; second, because it demonstrates the great value of the opsonic index as a diagnostic agent when used with intelligence; third, because the disease which had resisted all ordinary treatment for nearly a year yielded at once to immunising methods; fourthly, the case is of interest as showing conclusively that bacteria can give rise to true neoplastic as opposed to inflammatory tumours, and that neoplasms due to this cause may, at any rate in some cases, be expected to respond to a vaccine just as satisfactorily as a boil or a carbuncle.

Devonshire-place, W.

[1] Whilst this article was being prepared further improvement took place: the patient has learned to stretch her fingers completely at will, and I notice that even the flexor digitorum profundus begins to react to strong faradic current.

CHELSEA CLINICAL SOCIETY.—The annual general meeting of this society will be held on Tuesday next, May 20th, at St. George's Hospital, in the club rooms of the Medical School. The chair will be taken at 8.30 P.M. by Dr. T. B. Hyslop. After formal business a demonstration on the Preparation and Standardisation of the Different Kinds of Tuberculin will be given, accompanied by laboratory exhibits.

BROMPTON HOSPITAL.—A course of lectures will be delivered at this hospital during the summer term. The first lecture will be given on May 21st, at 4.30 P.M., by Dr. F. J. Wethered on Tuberculin in the Treatment of Febrile Cases of Pulmonary Tuberculosis. On May 28th Dr. Charles H. Miller will lecture on the Site of Tuberculous Lesions at Different Ages, this lecture being one of the advanced lectures in medicine arranged by the University of London. On June 4th Dr. A. C. Inman will give a special demonstration on the manufacture of tuberculin, and he has arranged for special exhibits of the methods of preparation and testing of the various kinds of tuberculin. On June 12th there will be an expedition to the Frimley Sanatorium, to which all who are interested in sanatorium treatment are invited. Other lectures will follow. The lectures and demonstrations are public, and all qualified medical practitioners and students of medicine are invited.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SPECIAL MEETING OF FELLOWS.

Completed Discussion on Alimentary Toxæmia.[1]

A MEETING of the Fellows of this society was held on May 7th, Sir FRANCIS H. CHAMPNEYS, the President, being in the chair.

Dr. H. D. ROLLESTON said that as the uninjured skin was comparatively impervious the other surface covering of the body or the mucous membranes constituted the main inlet for microbes and poisons; and of the various mucous tracts that of the alimentary was much the largest, and further was much the most exposed to infection and intoxication. It was true that the exposed condition of the alimentary canal was specially protected by the acid gastric juice against microbic activity and by the liver against poisons, but these lines of defence might be overwhelmed and broken down. It was easy to argue that a very large number of the diseases to which flesh was heir were due to intestinal toxæmia, but the state of our present knowledge made caution necessary. Still, although it might be difficult to prove the widespread influence of alimentary toxæmia, it was unwise to put aside possibilities until they could definitely be ruled out. A difficulty about a wide assumption as to the existence of alimentary toxæmia in the sense in which it was employed in this discussion—namely, effects in other parts of the body due to poisons apart from micro-organisms—was that many of the effects assumed to be toxic might be due to the passage of micro-organisms in small numbers into the circulation, and so into the tissues. The hypothesis of such an escape of micro-organisms had long been before us in Adami's sub-infection with B. coli which he (Adami) suggested played some part in the production of cirrhosis, hæmochromatosis, and pernicious anæmia. With the improvements in our methods of blood culture bacteriæmia was now more commonly recognised, and in the future transient and comparatively non-virulent forms might be found to be more common than was generally realised. Another point to be borne in mind in this discussion was that the same result—for example, nephritis, neuritis, or arthritis—might be brought about in different ways, by different forms of toxæmia, of which alimentary toxæmia was one. Therefore in considering the influence of alimentary toxæmia it was not necessary to argue that it was the exclusive cause of certain conditions. The large subject of alimentary toxæmia might be divided in the first place into the results due to (1) alterations in the quality and quantity of the foodstuffs introduced into the intestine; (2) the activity of micro-organisms in the intestine. To refer in the first place to idiosyncrasies to certain foods, it was true that the hypersensitiveness might depend on changes in the blood and tissues, the intestine being merely the passive transmitter; but on the other hand the digestive processes might be congenitally so modified or the circumstances so altered by a change of the intestinal flora as to produce poisons out of ordinary food—e.g., an abnormal cleavage of proteins and other bodies. Thus family periodic paralysis might conceivably be due to a congenital metabolic defect, which in the presence of unsuitable food gave rise to the formation of poisons in the intestine (Gardner). This subject had been discussed by Dr. Vaughan Harley, who suggested that the idiosyncrasy of some persons to eggs, which was now commonly quoted as an example of anaphylaxis, was due to the cleavage of lecithin into cholin which might eventually yield the poisonous body neurin. Apart from any active toxic properties alteration in the quality and quantity of the food-stuffs might so modify metabolism that morbid changes and symptoms were produced. Our knowledge of "the nutritional importance of the presence in dietaries of minute amounts of certain accessory substances" which might possibly activate metabolism was only in its infancy. To turn to the more commonplace results of excessive quantities of food, an excess in the intake of proteins was commonly regarded as one of the causes of arteriosclerosis by raising the blood pressure either (1) through toxic constriction or the peripheral field or (2), and this hypothesis will be referred to later, by primarily acting on the suprarenals or the thyroid. It had recently been suggested that an excessive protein diet was specially prone to produce change in the gastro-intestinal vessels, so causing "angina abdominis." In rare instances common salt in excessive quantities had produced œdema in healthy persons, just as it was known to do in nephritis; Rodriguez had recently argued that an excessive intake of salt might, by its influence on metabolism, cause some cases of diabetes. An excess of carbohydrate food favoured fermentation, and in children might cause fever. How far an habitual excess of proteins or carbohydrates could, by wearing out the assimilative powers of the tissue, lead to metabolic disorders underlying gout and diabetes was a question which was perhaps hardly within the limits of a discussion on alimentary toxæmia. In connexion with this, which was the most obvious aspect of the subject, he would only refer to some rather debatable problems. The condition of intestinal infantilism due to chronic diarrhœa might be explained merely as the result of malnutrition. Herter and Kendall, however, had found that the condition was associated with large numbers of a micro-organism (bacillus infantilis) in the stools. The suggestion that toxæmia of intestinal origin might produce widespread effects, such as neurasthenia and liability to other infections, was in harmony with views put forward by Mr. Lane and others. It was an attractive hypothesis that changes in the ductless glands either in the direction of proliferative reaction, as in exophthalmic goitre, or of degeneration, as in myxœdema and polyglandular insufficiency, might in certain cases be due to toxins absorbed from the intestine. Personally, he quite anticipated that proof would eventually be forthcoming. There were some points compatible with the view that exophthalmic goitre might in some instances be the result of alimentary toxæmia. Digestive disturbances were very frequent, a protein diet usually aggravated the symptoms, indicanuria had, in his experience, been common. The evidence recently brought by McCarrison to prove that endemic goitre was due to alimentary toxæmia might well suggest that some other form of intestinal toxæmia might induce exophthalmic goitre. In both these diseases the blood showed a relative lymphocytosis, a change which might be due to intestinal disturbance. The relation between synovitis and other forms of arthritis, on the one hand, and the alimentary canal, on the other hand, provided scope for considerable discussion. A. E. Garrod argued that the transient joint manifestations accompanying erythemas, purpura, and urticaria were, like the cutaneous changes, toxic. The influence of alimentary toxæmia in the production of skin lesions had been fully discussed, and it did not seem unreasonable to suppose that transient attacks of synovitis might be explained similarly. The synovitis of acute rheumatism was so transient and left so little or no change that in the presence of the conflicting accounts as to the sterile or infected condition of the joints it might be toxic, and due to the products of streptococci in the alimentary canal. The condition of chronic rheumatoid arthritis might be secondary to focal infection in various parts of the alimentary canal. The head retraction and other symptoms of meningism sometimes seen in cases of severe infective diarrhœa in young children appeared to be due to the action of poisons absorbed from the alimentary canal. A form of intestinal toxæmia in the newborn, due to bacterial infection of the meconium within the first 48 hours, had recently been described by Morse. Incomplete evacuation favoured absorption of putrefactive products from the meconium. The infant rather suddenly became seriously ill about the third to fifth day, had moderate fever, and commonly cyanosis, twitching, general rigidity, and even convulsions. If the bowels were thoroughly opened, all food stopped for a time, and water freely given, recovery was usually rapid and complete. The methods by which intestinal toxæmia might disturb metabolism were various, and as illustrating the complexity of the subject Woolley and Newburgh's explanation of the etiology of diabetes might be quoted. As they found that the injection of indol produced hypertrophy of the medulla of the suprarenals, they suggested that such hypertrophy, if

[1] THE LANCET, March 15th (p. 754), April 19th (p. 1093) and 26th (p. 1163), and May 3rd (p. 1232) and 10th (p. 1310), 1913.

lasting for a considerable time, might by causing a change in the chromaffin-pancreas equilibrium set up diabetes. That there was an inter-relation between the pancreas and adrenals was shown experimentally by (1) Pemberton and Sweet's observations that intravenous injections of adrenalin inhibited the flow of pancreatic juice, that removal of the adrenals induced a flow of pancreatic juice which could be inhibited by injections of adrenalin; and (2) the production of glycosuria by painting the pancreas with adrenalin and also, though not so certainly, by its injection into the circulation. Reference might be made here to the possibility that changes in the suprarenals due to alimentary toxæmia might be instrumental in the production of arteriosclerosis. It had long been an article of faith that continued indiscretions in diet and over-eating caused chronic arterial and renal disease; more recently it had been noted that the suprarenals were large in granular kidney and arteriosclerosis, and it might again be suggested that indol and other bodies absorbed from the intestine caused hypertrophy of the suprarenal medulla, and so high blood pressure and ultimately arteriosclerosis and granular kidneys. Metchnikoff, as the result of the experimental administration of paracresol, phenol, and indol, products of the activity of B. coli, induced arterial changes. Schur and Weisel stated that they identified adrenalin in the blood serum of patients with chronic nephritis by means of the Meltzer-Ehrmann frog-pupil reaction, but other observers, and quite recently Janeway and Park, had failed to find any evidence of adrenalin or other pressor substances in the blood of persons with high blood-pressure. This suggestion as to the mechanism by which alimentary toxæmia caused arteriosclerosis was tempting but as yet non-proven. Another remote way in which alimentary toxæmia might set up arteriosclerosis was conceivable—namely, by inducing thyroid insufficiency. If the normal blood-pressure was maintained by a balance between the pressor and the depressor internal secretions, and the activity of the thyroid, which was the chief depressor ductless gland, was diminished, the blood pressure should rise, and as a result of this arteriosclerosis would eventually follow.

Dr. H. DOUGLAS WILSON said that his remarks were based on the observation and treatment of some 800 cases in which he believed the colon to be the seat of toxic absorption, and which had passed through his hands at Harrogate during the past nine years. Almost all of these were treated by intestinal irrigations of mineral water in addition to other spa methods. Both sexes seemed equally liable to chronic colon toxæmia, but most of the cases seen were females in proportion of 43 per cent. males to 57 per cent. females. The condition tended to run in families, and he had seen it frequently in two, and sometimes in three, generations. The age at which it was most likely to occur was difficult to ascertain as its onset was very insidious, but troublesome manifestations commonly appeared about 40. The average age at which patients had come under his care had worked out at 43 years for males and 44 years for females. Most, but not all, cases were the subjects of constipation or inefficient evacuation of the bowels. Proper clearance of the colon was frequently most difficult to obtain by laxatives, as they tended to increase sigmoid spasm, present in so many cases, which stopped further evacuation after the passage of a certain amount of material. A common symptom was the very slack state of the abdominal walls, which tended to the production of visceral ptosis. Colon toxæmia also exerted a malign influence on the supporting structures of internal organs; hence another cause of ptosis. The nervous system was particularly prone to be affected, often only to a minor degree. It was rare to find toxic absorption in those of phlegmatic temperament. It might be the cause of severe nervous conditions, such as intractable hemicrania, various types of neuralgia, and insomnia. It was often associated with rheumatoid arthritis, and might set up gout, especially of the acute type. As to treatment, diet must be suited to the needs of the individual patient, but should be considered as much from the mechanical as the chemical standpoint. Articles of diet leaving irritating residue were best avoided. He would most strongly urge routine thorough examination of the abdomen where there could possibly be a doubt as to the origin of symptoms. Where there was still a doubt as to the state of the colon, irrigations frequently cleared up a diagnosis.

Mr. W. ARMSTRONG said that he would like to record the results of 16 years' study of the many problems of alimentary toxæmia, and the lessons he had learnt regarding its treatment. Since he first wrote on this subject, some 15 years ago, great strides had been made in the scientific study of the intestinal ferments and flora and their behaviour. But he doubted if similar progress could be claimed for the therapy. With regard to dental sepsis he had repeatedly found that pyorrhœa albus and other septic oral conditions had originated, or kept up, gastric disturbances; and in some cases arthritic mischief in the joints. Latterly he had become convinced that there had been a tendency to overrate the proportion of arthritic cases due to this cause, but the excellent work of Goadby had to his personal knowledge given, in properly selected cases, brilliant results. Concerning gastric stasis and atony, the collection of symptoms comprising recurrent migrainous headaches, stiffening and swelling of finger-joints, neuritis in various nerves, morning malaise, "never feeling really well" until after midday, the condition described as "livery" or "suppressed gout," even when of very long standing and refractory to treatment, completely cleared up when the stomach was regularly emptied, and the fermentation of the delayed food with its formation of butyric acid and poisonous gases was checked. It was difficult to persuade the laity that the "sluggish liver" which they so strenuously condemned and so pitilessly drove was not the culprit, but really the victim of overwork in its gallant attempt to destroy the digestive toxins, so much larger in quantity and so much more poisonous in quality owing to over-prolonged food retention in the stomach. The treatment divided itself into three sections: (*a*) methods of emptying the stomach; (*b*) measures to strengthen the atonic gastric wall and its weakened nerve-supply; (*c*) remedies to lessen poisonous fermentation. (*a*) The administration of a weak hot solution, one teaspoonful to the pint of water of Carlsbad salt on van Ziemssen's plan. That was to say, one pint in wineglassful doses spread over three-quarters of an hour fasting, or, this failing, gastric lavage must be used two or three times weekly; (*b*) mechanical treatment, chiefly of the electrical or vibratory order (with or without massage) over the atonic stomach, over the cervical and splanchnic ganglia, and over the solar plexus; (*c*) Bouchard's most valuable but neglected remedy, fuming hydrochloric acid 5 m. to 10 m. freshly mixed *at the time of administration* with 6 to 8 oz. of water and taken with every meal. This was of exceptional value and greatly reinforced the antiseptic power of the gastric juice. He then spoke of duodenal fermentation and putrefaction. When the urine contained a large excess of indican, skatol, and creosol, patients showed some one or more of the following symptoms: Feeling of general malaise; dry muddy-looking skin; sallow complexion; general irritability and restlessness; enlargement of joints, especially those of the fingers; neuritis of various nerves; discomfort and gaseous distension, especially of the colon, two or three hours after food; and other symptoms of putrefactive fermentation of the carbohydrates and of poisoning by resulting starchy toxins; a tendency to obesity of an intractable type; and especially a marked rise of blood pressure. He was convinced that a large number of the pre-sclerotic type of high tension cases were caused by duodenal poisoning. When pyrocatechin was present its poisonous effect upon the spinal cord probably accounted for the large proportion of arthritic cases observed. The most effective treatment was calomel gr. i. once or twice a week, followed by a sulphate of soda morning aperient; and either the petroleum and bismuth emulsion as suggested by Dr. Bezly Thorne, or resorcin, bismuth salicylate, and phenol in tablets. It would be remembered that the late Dr. Salisbury attributed all the ills that flesh was heir to to starchy toxins; and although he could not travel with him so far along that road, two points had impressed themselves on him: one that there were many cases of starchy toxæmia; the other that the red meat and hot-water dietary suggested by Dr. Salisbury was of distinct value in many severe cases of this condition Dealing with intestinal poisoning he said that in seeking a reliable working indication for the need of active treatment of this condition he found that a considerable excess of aromatic sulphates in the urine supplied such a guide. With the advent of the Plombières douche many more arthritic cases had been treated by this means;

but its use without proper differentiation had caused disappointment just as a similar misuse of the "sour milk" and "Salisbury" treatments had greatly damaged those valuable methods in the eyes of our profession. Those somewhat rare but most intractable cases of recurrent acute erysipelatous eczema had never in his experience failed to respond to thorough intestinal lavage. Many other chronic and refractory cases of various kinds, but all possessing one feature—viz., marked excess of aromatic sulphates in the urine—had responded readily to this treatment. He concluded by drawing attention to three general methods which he had found of the utmost value in all alimentary toxæmias. (*a*) The administration of a strong solution of radium emanations in water. Lazarus Saubermann, Deutelmoser, Berger, Bickel, and many others had shown that these emanations (1) greatly increased the activity of the various ferments, especially the peptonic and diastatic; (2) markedly improved nerve vitality, especially of the sympathetic system; (3) stimulated the output of the body waste, the carbon dioxide from the lungs by 20 to 60 per cent., the sweat toxins by 40 to 70 per cent., the urinary poisons by 10 to 15 per cent.; (4) had a destructive influence, in large doses, over low forms of bacterial and spore life. (*b*) The use of oxygen, either inhaled in association with radium emanation, or given in the bath by the double powder of sodium perborate and manganese borate. (*c*) Professor Bergonié's method of strong, rapid, painless, simultaneous contraction of practically the whole of the muscles which were weighted to increase the contractions. He had found that this method, originally introduced for the rational treatment of obesity (in which it had proved most effective), was most helpful in alimentary toxæmia. It braced up the abdominal walls and also the atonic intestinal canal; it emptied the lymph spaces between the muscles and quickened the often stagnant lymph circulation, stimulated the whole nervous system, and speedily dissipated those feelings of malaise and misery which made the life of the sufferer from alimentary toxæmia so wretched, paving the way if allowed to go unchecked for that most intractable form of neurasthenia which was at once the despair of, and a reproach to, our profession.

Dr. W. KNOWSLEY SIBLEY, speaking of alimentary toxæmia in dermatology, said that a very large number of skin eruptions were the external manifestations of a morbid condition of the general system directly due to a toxæmia of the blood, the result of the absorption of morbid products from the gastro-intestinal tract. It followed that in all of these conditions proper attention not only to the diet or intake, but also to the excreta or output, was of primary importance for the satisfactory treatment of the skin complaint. A system saturated with the toxins absorbed from an overloaded intestine was by no means an uncommon cause of a large number of apparently very different skin diseases. In fact, it would be difficult in the present state of our knowledge to name many manifestations (excluding, of course, the various parasitic diseases, both animal and vegetable) which were not in many cases the external expression of a general unhealthy condition of the blood supplying the region, the result of a defective assimilation of the digestive processes, or more generally of a delayed excretion of the waste products of the digestive metabolism. The first sign of a want of balance between assimilation and excretion was usually to be found in the colour and condition of the skin, especially in certain regions of the body. A pasty or muddy complexion often was one of the signs of malassimilation, or of absorption from the contents of the large bowel or both. The results of so-called hepatic derangements showed themselves very quickly in the colour of the skin, and pointed to digestive disturbances of various degrees. A large group of skin phenomena under the heading of urticarias or nettle rashes had long been recognised as the direct result of gastro-intestinal influences and were designated "stomach rashes." Many other common diseases, both acute and chronic, were also determined by similar processes. There was no doubt that the condition of the gastro-intestinal tract played a leading part in a large number of cases of eczema, and that proper attention to the regulation of the diet and of the bowels was necessary for their satisfactory treatment. Psoriasis, again, was often undoubtedly the result of toxic influences derived from the gastro-intestinal tract, and a complete change in the diet from a too nitrogenous to a vegetarian one would often cure an old-standing case. So again, acne in its various forms was generally associated with an overloaded bowel, and free purgation was often the most efficient treatment; the same might be said of many cases of purpura. Even in many diseases, obviously due to the invasion of micro-organisms, such as staphylococci, streptococci, or perhaps even the acne bacillus, a toxic condition of the blood due to a systemic poisoning from fæcal or other morbid absorption was necessary for the growth and development of these organisms. From his experience he should say that, speaking generally, the immunity of the skin to the development of micro-organisms was directly impaired by an obstructed drainage system. It was evident that in a large number of cases of general skin diseases it was the mucous membrane rather than the skin which required the chief attention. The skin lesion might be controlled and rendered more comfortable by suitable local, more or less sedative, protective or bland applications, but it was to the gastro-intestinal tract that the main treatment should be directed. In every case of skin eruption a systematic examination of this should be made before determining the special line of treatment. The whole systemic disturbance might be due to a neglected pyorrhœa alveolaris and to absorption from it either locally or from the stomach after being swallowed and setting up a gastro-intestinal catarrh. He had discussed the relation between pyorrhœa alveolaris and certain diseases of the skin in a paper read before the Odontological Section of this society two years ago, in which he enumerated a large number of different eruptions that could often be traced to pyorrhœa, and indicated the part it played in alimentary toxæmia; and the treatment for which eruptions was to be directed mainly to the cure of pyorrhœa. Some of the diseases he then enumerated were acne vulgaris and rosacea, alopecia (and especially alopecia areata), eczema, erythema, herpes, œdema, seborrhœa, and seborrhœic eczema. Leaving the oral cavity and passing on to consider the stomach, there might be a chronic gastritis due to errors of diet, especially from the abuse of alcohol, producing a catarrhal condition affecting not only the stomach but also the hepatic system, and extending its baneful influences on into the duodenum and small intestines. More frequently still the colon was found to be loaded with old-standing fæcal accumulations, gradual absorption from which produced a general systemic poisoning. To sum up, the treatment of a large number of general skin eruptions resolved itself into the scientific treatment of chronic constipation. With regard to this most important fact in dermatology, it had to be realised that because a patient had a daily evacuation of the bowels it by no means necessarily followed that he did not suffer from all the morbid effects of toxic absorption from an overloaded colon. It was not the frequency of evacuation that was of importance but the quantity; that is to say, that the contents of the large bowel were systematically completely removed, and that there was not an ever-increasing residue left behind. In other words, it was necessary to be sure that the patient was not passing to-day what he ought to have got rid of a week, or perhaps a month, ago. He had often remarked that most, if not all, of the drugs which had been found of benefit in the treatment of general diseases of the skin acted chiefly, if not entirely, as laxatives, aperients, or disinfectants of the gastro-intestinal tract, and he believed their beneficial effect was due to their direct local action on the gastro-intestinal contents rather than to any specific action of the preparations themselves. The most popular drug with the older school of dermatologists was arsenic, which was often prescribed as a specific for most of the more or less chronic forms of skin diseases. Arsenical preparations were among the most powerful bactericidal agents known to chemists, and, apart from their irritating, and therefore laxative, effects in the mucous membranes, it was to this property that their so-called specific action was probably due. Mercury, a specific for other skin diseases than those produced by syphilis, was essentially a most powerful germ destroyer. Quinine in solution was also a powerful bactericidal agent and disinfectant, and was equally efficacious for this purpose when administered into the stomach or when used for washing out the bladder or other viscus. Perhaps the next most popular drug, and one which still held its place, was iodide of potassium; and here, again, iodine was now

acknowledged to be one of the most effective bactericidal agents known, and hence its utility in the cure of a large number of very different skin diseases, especially when prescribed in comparatively small doses, which permitted of the iodine being liberated and so acting directly on the gastro-intestinal contents. The more recent introduction of drugs of the coal-tar series, such as the salicylates, salol, carbolic acid, resorcin, beta-naphthol, methyl-violet, &c., which were being more and more extensively prescribed by dermatologists, were all of them bactericidal agents, acting directly on the gastro-intestinal mucosa and its contents. The old adage to prescribe aperients in acute, and diuretics in chronic, skin diseases was as true to-day as it ever was. He maintained that with the exception of a few specifics for skin diseases which were themselves the result of specific organisms, either local or general, practically all the other old and modern drugs prescribed by dermatologists acted primarily and essentially as gastro-intestinal disinfectants or laxatives or both. Moreover, all drugs which did not act in this direction were deleterious and positively injurious in the majority of cases; for instance, opium and its derivatives, which, unless exceptionally and very occasionally in old people, should never be prescribed by dermatologists. Although this drug might temporarily relieve the distress of such skin conditions as urticaria or pruritus, as soon as its immediate sedative effects had passed off, it would almost inevitably produce far worse symptoms and greatly aggravate the complaint.

Dr. H. D. MCCULLOCH said: My interest in this discussion is from the physiological and biological standpoint. It is intended in some measure to link up with the bacteriological, pathological, and anatomical aspects so ably submitted by previous speakers. In the first place, I desire to draw attention to the absolutely sterile condition of the alimentary tract at birth and to the prenatal[2] existence of ptyalin in the buccal secretion, a ferment which in infantile life is mainly concerned with the control of oral sepsis. The sudden delivery of the infant from a normally sterile into a notoriously microbic environment, is anticipated by its possession of a conspicuously developed lymphoid and lymphatic system, the highly cytogenous glands of which, eminently equipped as they are for the purpose, bear the brunt of the heterogeneous and overwhelming microbic invasions that must necessarily ensue at and during the first few months of life. The *modus operandi* and the remarkable reactive properties of these glands, pending the disappearance of the thymus, and before the assumption by the bone-marrow of its leucopoietic function, is a fascinating and instructive study. The lymphatics are in no sense of the term mere filters. I will venture to say that by overlooking their mechanism Metchnikoff has, by his more recent surgical recommendations, stultified the fertility of his first great discovery. These researches are extremely fertile. It will be admitted that the peculiar anatomical disposition of the lymphoid glands in particular, and of the lymphatic glands in general, strictly corresponds with those regions of the alimentary tract that have the greatest microbic habitation, a fact that may be more noticeable in adult than in later life. The aged are known to acquire strong heterogeneous immunities, though their pulmonary immunities are of a fleeting kind. The relative term "Health" is in the main conditioned by the functional equilibrium of the lymphoid and lymphatic systems of glands. And since now one, now another, of these glands takes the lead, and evokes the antagonism of the others, as the rhythm of growth and development proceeds, from the biochemical aspect a series of intoxications of exogenous origin, followed by slowly acquired immunities—that is to say, of mild illnesses and recoveries—is the normal course of events. These immunities depend, doubtless, upon the extent of those already inherited. The glycogenic and hæmolytic liver is remotely protective, and this by virtue of its accessory lymphoid and lymphatic glands. The blood in the portal vein is as rich in excretory complexes as it is in those of the carbohydrates and fats. Bacteriological investigation of the vast majority of microbic diseases indicates the existence of a closer relationship between them than hitherto assigned by clinicians, who have devoted more consideration to the chemistry of the conditions than to the biological processes and the reactive mechanisms, vaguely termed inflammations, which have initiated and gradually produced them. The earliest stages of an inflammation are invisible, the later stages are obscured by redness. We are no further than Celsus was. I next beg to draw attention to the existence and better appreciation of symbiosis in its evolutionary aspect—that is to say, to the functional association of the lowest unicellular forms of life with higher mammalian forms, as is to be seen in the nitrogen-fixing microbes of leguminous and other farinaceous plants, an essentially physiological capacity. In mammals the nipples from the outset teem with milk-clotting organisms, which in the earlier periods of evolution were probably pathogenic to the suckling. Those of them that favoured an acid medium seem to have since become adapted, and their peculiar qualities are utilised in certain situations to mutual advantage. They have thus become physiological necessities in the last stages of digestion. For reasons that will suggest themselves this feature is most noticeable in the tropics,[3] less in the temperate zones, and least in the inhabitants of the Arctic Regions. The last-mentioned are obliged to live upon fats and oils; they do not, therefore, suffer from intestinal stasis; if they drank beer and tea they probably in course of time would. Abdominal surgeons are rare in Spitzbergen. Let us deplore the time-honoured periodic administration of castor oil, the cold-drawn variety—*ad baculum*—having become obsolete. The palate is pampered at the expense of medicinal virtue. Experiments have proved the folly of supposing an absolutely sterile intestinal canal to be consistent with function. Dr. Hale White drew attention to the uses of the bacillus coli, Mr. Sargent and Mr. Dudgeon have drawn attention to the uses of the intestinal staphylococcus albus, and Metchnikoff rightly ascribes the highest place to the B. lacticus. In regard to the resulting intestinal ferments that are protective, Sir Lauder Brunton and Abderhalden have indicated the capacity of these micro-organisms under varying conditions of acidity and alkalinity, of producing the desired end-products for ingestion. Indeed, the recent recognition of the biological expression "carrier" lends support to this evolutionary view of symbiosis as a natural and environmental necessity. The further point that I would raise—one that a few physiologists are already prepared to admit—is the desirability of considering the extra-vascular lymph or plasma to be the sole nutrient fluid, *the* fluid that most needs protection from toxic contamination. The blood being more a respiratory and an excretory provision, I contend that upon this view alone is it possible to account adequately for the production of peri-arteritis, sclerosis, and fibrosis, which result from exogenous toxæmia. The very intimate relationship between these fluids is not denied, but the swift movement of the blood is more consistent with the rapid distribution of oxygen and the removal of excretory products than it is with the slow process of protoplasmic synthesis and growth. It is necessary to bear in mind the pre-mesodermic origin of the lymph systems and the later mesodermic origin of the arterio-venous system—a fact that indicates the interposition of the latter between the lymph on the one hand and the ultimate tissue cells on the other. The blood does not bathe the ultimate cells; indeed, the plasmic as distinguished from the axial stream of the arterioles terminates at the arteriolar bifurcation, from which point erythrocytic function in the ultimate capillaries is alone capable of being performed. Upon this subject a communication was submitted by me to the Physiological Society last March, and experimental proof was first shown in this hall on April 29th by Dr. Monod in the pulmonary circulation of the frog. Permit me to criticise the misuse of the term "auto-intoxication" as applied by Mr. Arbuthnot Lane and others. Adami, in his treatise on General Pathology, emphasises this point by saying that laxity in regard to the use of the term auto-intoxication has caused great confusion, and has rendered a term capable of high value particularly useless.[4] It is suggested that the term "absorption," in the present state of knowledge of bio-chemical problems, should be replaced by the term "ingestion." Adami also lays stress upon the fact that the human organism is a closed corporation, strictly speaking. He represents it by a figure

[2] Ante-natal Pathology and Hygiene. Ballantyne.

[3] The large admixture of spices rich in aromatic oils in tropical dietaries is scarcely appreciated in European cooking. The majority are antimicrobic.

[4] Adami: General Pathology, p. 300.

of the simplified individual, which speaks for itself. The tempting notion of the easy accidental ingress into the circulating blood of microbes not gifted with intrinsic powers of penetration is a delusion. Their insertion by trauma into the venules is another matter—a remark that applies to the occasional ingress through abraded or degenerated mucous membrane into the meningo-faucial lymphatic sheaths. Imperfect phagocytosis and subsequent disgorgement in the deeper tissue interspaces is a more common and consequential occurrence. Such liberated organisms would set up thickenings in those situations according to their toxicity, without necessarily leaving any trace of their existence. They could not be recovered and cultivated. Toxins that are ingested into the portal blood may be discharged in the bile or then be modified, and, if not discharged by the lungs or the skin, would eventually be discharged by the kidneys. Failing these emunctory channels, and depending upon the relative viscosity of the fluids within and without the blood-vessels, certain toxic molecular complexes are constantly escaping by diffusion into the lymph. It is to meet this danger that the inception of endarteritis, periarteritis, and sclerosis takes place. It is owing to this liability to escape from the blood during excretory transit and to no other cause. I have endeavoured to fasten attention on this question of the lymphatics during the past few years. The more I have studied them the more is this truth borne in upon me, and the more I am concerned to champion in my humble way their important rôle in the mechanisms of disease. Like the indispensable foreign secretary, how many wars has he nipped in the bud by his successful diplomacy carried on over a long period of years, and of which the public are left, by his very success, in entire ignorance? *Credidi—quod propter locutus sum.*

Dr. RALPH VINCENT dealt with the bacteriology of alimentary toxæmia in the infant and child. His classification of the organisms was based upon their growth in and their action upon milk. The four groups were: (1) bacteria producing lactic acid but not producing gas; (2) bacteria producing lactic acid, carbon dioxide, and alcohol; (3) bacteria growing in "pasteurised" milk; and (4) bacteria growing in boiled or "sterilised" milk. With regard to the bacteriological analysis of the intestinal dejecta three classes of organisms were commonly observed: (1) obligatory fermentative bacteria; (2) facultative fermentative bacteria; and (3) obligatory proteolytic bacteria. He then discussed the biochemical processes occurring in the alimentary canal of the healthy infant and contrasted these with the conditions found in intestinal toxæmia. The precise diagnosis and treatment of the pathological conditions were illustrated by three typical cases—(1) acute colitis; (2) acute enteritis; and (3) chronic colon toxæmia.

SURGICAL SECTION.

Aberrant Renal Arteries.—Splenectomy.

A MEETING of this section was held on May 6th, Mr. G. H. MAKINS, the President, being in the chair.

Mr. J. HUTCHINSON read a paper on Obstruction of the Ureter by Aberrant Renal Vessels. This was a clinical study of 21 cases operated upon by the surgeons of the London Hospital during the last eight years. The presence of a "tail-artery" (that is, one running from the aorta or renal trunk to the lower pole of the kidney and crossing the ureter), being a congenital condition, would be expected to cause trouble in the first few years. It did so, however, but rarely, the first attack of lumbar or abdominal pain due to obstruction of the ureter coming on in two-thirds of the cases between the ages of 15 and 25 years, very rarely before this. The cases were twice as common in males as in females, and the right kidney was concerned twice as frequently as the left, to judge from the present series. The aberrant artery, accompanied or not by a vein, crossed behind the ureter as a rule; the obstruction due to it had little or no relation to the kidney becoming mobile or floating. The attacks of pain produced by distension of the pelvis were severe, of sudden onset, often attended with vomiting and sweating; the act of vomiting relieved the pain. These attacks were separated at first by months or years, but became more and more frequent, e.g., every few days; they always lasted some hours. Exercise had little relation to the attacks, which might come on when the patient was lying down. Diet and medicines had no effect upon them; heat applied to the loin and rest *on the affected side* usually relieved. An important point was that there were no urinary symptoms in these cases, and it was probably this that led to the long delay in recognising their nature. In most of the cases brought forward the patient had endured the attacks for several years before obtaining surgical relief. It was essential to operate by lumbar incision before permanent hydronephrosis had been established and the kidney had become disorganised. The aberrant artery should be divided, and the kinked (often much distorted) ureter and pelvis straightened out. From the evidence of cases up to the present time it was not advisable to attempt any form of plastic operation upon the pelvis and ureter, as suppuration and escape of urine were certain to spoil the result. Nephrectomy was necessary in about one-fifth of the series. If the kidney were found too mobile it should be anchored in place after division of the aberrant vessels. Attention was especially drawn to the question of diagnosis of the condition, and a detailed account of the symptoms, &c., was given. Now that the X rays enabled renal calculus to be detected easily the difficulty should be much lessened. The slight resemblance to appendicitis attacks might lead to removal of the appendix, but a lumbar exploration of the kidney should be resorted to in every suspicious case.

Mr. FRANK KIDD showed two cases of Enlarged Spleen Cured by Splenectomy. 1. "*Banti's disease*," or "*splenic anæmia*." This case was that of a girl referred by Sir Bertrand Dawson. She was aged 17 years at the onset, and was operated on in the third stage of the disease, two years after the onset. She showed all the classical signs of the disease: enlarged spleen, secondary anæmia, pigmentation of skin, leukopenia, periodic gastric hæmorrhages, ascites, œdema of legs, small cirrhotic liver, and wasting (3 st.). There was an absence of syphilitic or alcoholic history. The operation proved difficult owing to adventitious adhesions containing enormously dilated veins, which tore easily, but the spleen was successfully removed through a 5-in. vertical incision through the left rectus muscle. The result, seven months later, was that pigmentation and anæmia were gone; there was no ascites or œdema; the blood-count was normal, save for a slight lymphocytosis; the scar was sound. The patient never felt better in her life. A chart was shown of a series of blood-counts made before and after removal of the spleen. Mr. Kidd shortly reviewed the history of the clinical conception of "Banti's disease," and brought forward some post-mortem evidence to show that the symptom-complex could be brought about by more than one cause. The constant cause appeared to be anything which could produce engorgement or obstruction of the portal venous system. Seeing the extraordinary amelioration of symptoms brought about by splenectomy in many of these cases, Mr. Kidd suggested that a trial of splenectomy ought certainly to be made in all cases of cirrhosis of the liver with enlarged spleen. It seemed possible that it was the enlarged spleen which caused the fatal symptoms in cirrhosis of the liver, and its removal in alcoholic cirrhosis might lead to results as brilliant as in the case recorded above. The operation was not more dangerous than omentopexy if a large enough incision were made so as to ensure proper exposure and easy control of deeply placed bleeding points. 2. A woman, referred by Dr. S. M. Mackenzie, of Dorking, who had suffered for six months with attacks of severe pain in the left hypochondrium, the last of which had ended in an attack of peritonitis, since which time the patient had noticed a dragging pain in the left shoulder-joint. A large tumour was found in the left hypochondrium. To exclude renal tumour a ureteric catheter was passed up the left ureter, and the kidney filled with collargol, and skiagraphed. The shadow of the kidney, its pelvis, and the ureter was normal. Operation was as follows. The abdomen was explored through the left rectus. A large spleen was found densely adherent to the diaphragm and removed. The microscopical diagnosis was hypertrophy of the spleen. Convalescence was marred by an attack of broncho-pneumonia at the left lung base, but the wound healed by first intention, and a year later the patient was reported by her medical attendant as being quite well. This was a case of hypertrophy of the spleen. Laspeyres had collected 16 cases where operation had been performed for such a condition. In this case the hypertrophy was the primary factor, followed by attacks of rotation of the pedicle. The last of these attacks ended

in peritonitis with the formation of subdiaphragmatic adhesions. Nature thus performed Kouwer's operation for splenopexy. The pain in the shoulder-joint was an important sign of trouble beneath the diaphragm. The fourth and fifth cervical nerves gave fibres both to the phrenic nerve and to the suprascapular nerve which supplied the shoulder-joint. Mr. Kidd had observed when operating on a case of perforated gastric ulcer under stovaine spinal anæsthesia that no pain was felt except when the hand was passed up under the left leaflet of the diaphragm. The patient then exclaimed: "You are hitting me in the left shoulder-joint." This was a sign that deserved wider recognition. It might be met with, for instance, in disease of the gall-bladder and liver. Pain in the shoulder-joint might mean trouble beneath the diaphragm.

Mr. F. F. BURGHARD and Dr. G. A. SUTHERLAND reported the after-history of two cases of splenectomy for splenic anæmia. The disease in these cases was of the family type, a sister in the one case having died from splenic anæmia, and the father and uncle of the second case had enlarged spleens and anæmia. The first patient, a female, was now 20 years old, and the spleen was removed seven years ago. She was a well-grown and well-nourished girl, who had been in domestic service for some years. She presented no symptoms referable to the absence of spleen, but suffered at times from the effects of a cardiac lesion, which dated from an attack of rheumatic fever in childhood. A blood examination made this month was as follows: red blood cells, 4,740,000 per c.mm.; white corpuscles, 7000; hæmoglobin, 93 per cent.; colour index, 1; no poikilocytes or nucleated red cells. There was no palpable enlargement of any lymphatic glands. The second patient, also a female, was 9½ years old now, and the spleen was removed three years ago. She was well-grown and in good health. There had been no recurrence of any former symptoms, such as pallor and breathlessness, and the patient was leading the ordinary life of children of her age. A blood examination made this month gave the following result: red blood cells, 4,510,000; white cells, 12,500; hæmoglobin, 88 per cent.; colour index, 0·98. No poikilocytes or nucleated red cells. The superficial lymphatic glands were not enlarged. As regards these two cases of splenic anæmia, it would appear that the splenectomy had proved a radical cure. It might be stated definitely that the grave and progressive symptoms which were present before the operation disappeared completely very soon after it, and that there had been no recurrence of any symptoms of disease at periods of, in one case, seven years and in the other three years.

Sir J. BLAND-SUTTON said that it was now many years since a discussion had taken place on splenectomy either in the old Medico-Chirurgical Society or the present Section. Since, as the result of advancing knowledge of blood diseases, they had been able to recognise leukæmia the operation had become a safe one, for it was such cases that almost excluded the operation from the list of surgical procedures. He had followed the course of ten cases of splenectomy. There was nothing of importance in the after-condition of such patients to suggest that they were spleenless. He recorded a case of thrombosis of the splenic vein in which recurrent hæmatemesis occurred until an attack proved fatal. He had never seen or heard of another like it until reading the record of a similar case quite recently. Had splenectomy been employed, it was probable that it would have been successful. He thought that at the present time splenectomy had come to be a valuable operative procedure.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Diseases Communicable from Animals to Man.—Exhibition of Cases.

A MEETING of this society was held on May 2nd, Dr. G. P. SHUTER, the President, being in the chair.

Professor FREDERICK HOBDAY read, by invitation, a paper entitled "Observations upon some of the Diseases Communicable from Animals to Man." His list included tuberculosis, anthrax, glanders, rabies, vaccinia, mange, ringworm, measles in cattle and the tænia mediocanellata, measles in pork and the tænia solium, echinococcal infections and trichinosis, foot and mouth disease, Mediterranean fever, plague, and sleeping sickness; also tetanus, actinomycosis, and other diseases that could be produced with equal facility in man and animals by inoculation with the same causal organism, but his detailed remarks were confined to glanders, tuberculosis, mange, and ringworm. Glanders was especially seen in horses, and until about ten years ago a day rarely passed in London without several cases being reported, and the veterinary inspector was permitted to interfere only with those clinically glandered. But now when an outbreak occurred in a stable the mallein test was applied by injecting the animal in some place where the skin was loose, and if the temperature rose steadily from 2° to 5° within the next 24 hours, and a diffused tender swelling also appeared, the animal was valued and slaughtered. A persistent nasal discharge was always a source of suspicion, and a careful examination usually revealed ulcers on the septum nasi. This suspicion was strengthened by an enlarged submaxillary gland. If only one side was affected it was invariably the left. Another clinical sign on the horse was the presence of swellings along the lymphatics of the neck or inside the thigh, termed "farcy buds," which suppurated and burst. The discharge was highly dangerous and infective. Brushes, sponges, and stable utensils conveyed the disease from horse to horse, and from these, or from the nasal discharge, man became infected. It was necessary to bear the disease in mind when treating stable hands. He had seen a patient who had been ailing for 10 months without a diagnosis being made, and at the post-mortem examination the lungs were found full of glanders nodules. In 1901, 2370 horses were reported in Great Britain as suffering from it, of which 1828 came from London. In 1908 there were 789 outbreaks, of which 495 were in London and 198 in the metropolitan counties, 2433 horses being slaughtered on account of the disease. Last year there were only 504 individual horses affected in the whole of Great Britain. With the advance of the motor, combined with the more stringent regulations of recent years, glanders would probably soon become non-existent. Disastrous epidemics of glanders had broken out in zoological gardens from eating infected horseflesh amongst lions, tigers, and members of the cat tribe. All domesticated animals, and even birds, afforded prey for the tubercle bacillus, although some were more susceptible than others, and no organ of the body was exempt. Heredity played an inconsiderable part compared with exposure to actual contagion in causing it. In the horse, dog, and cat the disease was well recognised, but the chief source of danger arose with the cow and its milk-supply. The milk question once settled and tuberculosis of cattle completely eradicated, the veterinary profession would indeed have done something to help the medical profession. The human deaths in England and Wales in 1910 amounted to 51,317 from tuberculosis alone. There were over a million and a half tuberculous cattle in Great Britain, or scarcely less than 25 per cent. of the milking herds. The loss to dairy farmers in England was nearly £1,000,000 annually. Bacteriological examinations in 1908 had demonstrated tubercle bacilli in 10 per cent. of the milk samples examined in London; in Liverpool, owing to better veterinary inspection of the cattle and farms, the figure was only 3 per cent., reduced in 1911 to 1 per cent. Even this was far too high. He hoped that the new order would ultimately make it *nil*. Every species of domesticated animals and many wild ones might contract mange, which was caused by a parasite and was contagious to man, in whom, however, as a rule the parasite lived its life but did not propagate. In the horse three varieties—the sarcoptic, the psoroptic or dermatodectic, and the symbiotic—were recognised, and two of them were now scheduled under the Contagious Diseases of Animals Act. The two former in particular were transmissible to man. Mange might be transmitted from the dog and cat to human beings, an important fact, for this disease was sometimes treated unsuccessfully as pruritus or eczema. In man it was manifested by a troublesome irritation and vesicular eruption, with small black spots where the heads had been removed by scratching. Professor Hobday referred to an account of the disease in the human subject published by Dr. Arthur Whitfield and himself.[1] In the cat it was due to the presence of a sarcopt affecting principally, first, the head and neck and spreading to the rest of

[1] Veterinary Journal, November, 1912

the body. The two varieties in the dog—the sarcoptis canis, a parasite of the usual itch order, and the demodex folliculorum—had each its analogue in the human species. Both were contagious to man. The sarcoptis canis was most virulent in the dog; an animal badly affected lost all its hair and had a very offensive smell. Cure was difficult and often impossible. In sarcoptic mange the dog persistently scratched, especially under the forelegs and thighs, and when in front of the fire or in a warm room could not keep still. If neglected the coat fell off, the skin became covered with blood-stained scabs, and there was a peculiar "mousy" odour. Infections and reinfections of the owners of pet dogs and cats by the sarcoptic parasite were common, but although the facts were well known the transmission of the parasite was not suspected so often as it ought to be. Lastly, ringworm as seen in the horse, calf, dog, and cat was considered. The varieties most commonly met with were ordinary ringworm (tinea tonsurans) and the honeycomb ringworm (tinea favosa), both contagious for man. In the country ringworm of calves was common. In animals the disease was tolerably easy to cure, the best remedies being either tincture of iodine or the alcoholic solution of salicylic acid. (Professor Hobday's remarks were well illustrated by numerous lantern slides and pictures.)

The PRESIDENT, Mr. N. BISHOP HARMAN, Dr. A. OGIER WARD, Mr. T. GUNTON ALDERTON, Mr. W. MCADAM ECCLES, and Mr. RICHARD BEVAN discussed the paper.

Professor HOBDAY, in replying, stated that in the cases of ringworm infection from horse or calf seen by him the infection was on the face or arms, not on the head. It was not generally admitted by veterinarians that cats were subject to scarlet fever or true diphtheria, or were especially susceptible to glanders, but they might become carriers of contagion. The disease known as bird diphtheria had no analogy with human diphtheria.

Mr. BISHOP HARMAN showed the following cases: 1. Fibroma of the Sclera in a boy aged 3 years. 2. Dermoid of the Orbit, beginning to suppurate and pointing through the skin of the lid, in a girl aged 12 years. 3. Disorganisation of the Interior of the Eye from Injury. Examination proved, and the history confirmed, that the loss of sight was far older than the date of a recent stone-throwing accident. It probably dated from a previous severe injury in connexion with a motor 'bus accident. The case was of considerable medico-legal interest. 4. Detachment of the Retina, associated with sudden failure of vision in the right eye, in a man aged 60, the subject of renal disease. 5. Case of Tay's Choroiditis in a man aged 65.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Congenital Cystic Tumour.—Clinical Report of the Rotunda Hospital.

A MEETING of this section was held on April 18th, Dr. R. D. PUREFOY being in the chair.

Mr. J. SPENCER SHEILL exhibited a photograph demonstrating a Congenital Cystic Tumour in an infant, situated in the mammary line on the right side. After two months, as there were no signs of subsidence, he withdrew 1 oz. of serous fluid with a trocar. It again filled up, and he proposed to open the tumour and treat it as an open wound. He gave details of a similar former case.—Dr. PUREFOY said he was sure Mr. Sheill was correct in looking on this as an uncommon form of tumour.

Dr. H. JELLETT read the clinical report of the Rotunda Hospital for the year ending Oct. 31st, 1912. The report showed that during the year 2339 patients were delivered under the care of the hospital extern department, and 2474 patients were admitted to the maternity wards. Of the latter number, 338, who were not in labour, were discharged undelivered, and 2136 were delivered. Thus a total of 4475 labours in all were attended by the hospital staff, being an increase of 26 on the previous year. Ten deaths occurred in the extern department and 11 in the intern, being a percentage mortality of 0·42 in the former and of 0·46 in the latter, or a mean percentage mortality of 0·44. The principal event of the year was the opening of the new labour wards. There was a violent outbreak of sepsis, from which two patients died; nevertheless, the morbidity rate was lower than the previous year, and was represented by 5·53 per cent., as against 6·64. During the past year there was no change in the plan of allowing patients out of bed much earlier than was generally held advisable, which had proved most satisfactory and beneficial to the patients. The report then dealt with the different complications of labour met with during the year. There were 7 cases of unavoidable hæmorrhage, in 4 of which the placenta was situated centrally over the cervix. In all cases the mother recovered. The routine treatment of Braxton Hicks's bipolar version was adopted. There was one case of accidental hæmorrhage, successfully treated by plugging the vagina. There were 24 cases of contracted pelvis, in 8 of which delivery was spontaneous, in 3 the forceps was applied, and in 3 pubiotomy, in 4 Cæsarean section, and in 4 craniotomy was done. In the craniotomy cases the child was dead, so no other method of delivery was tried. All the mothers recovered. There were 10 cases of prolapse and presentation of the cord, which were treated in different ways. All the mothers recovered, and 5 children were born alive. There were 14 cases of eclampsia, some of a very severe type. Twelve mothers recovered, and two died. The forceps was applied on 79 occasions. One mother died as a result of hyperemesis, from which she had been suffering for some time. Sixty-nine children were born alive and 10 dead. There were 5 cases of Cæsarean section. All the mothers recovered, and all the children who were alive when the operation was undertaken were delivered alive. One child was delivered dead and putrid, as the mother had been for a considerable time in labour before admission. There were three cases of pubiotomy, in all of which the mothers recovered and the children were delivered alive. There was one radical Cæsarean section and one complete hysterectomy to effect delivery in the case of a myomatous uterus. Both these patients were septic before operation. The case of myoma died on the sixth day; the other patient recovered rapidly. Particular attention was drawn to the introduction during the year of the operation of excision of thrombosed veins in case of pyæmia. During the year 587 patients were admitted to the gynæcological department—a slightly smaller number than those admitted in the preceding year. There were 482 operations performed, with a total mortality of 9—i.e., 1·87 per cent. Of the 9 deaths, one occurred the day after admission in a case of incarcerated myoma, which had been causing retention of urine for a considerable time. The inside of the bladder was gangrenous, the urine black and foul-smelling, and the patient was in a condition of general poisoning. One death was from recurrent ovarian papilloma, one from carcinoma of the pylorus, one from sarcoma of the uterus necessitating extensive intestinal resection, one from chorion-epithelioma, one from heart failure after an operation for prolapsus uteri, one from acute general peritonitis after operation for tubercular appendages, and one in a patient admitted seven months pregnant, with high temperature and rapid pulse, who became jaundiced with total suppression of urine. Hysterectomy for malignant disease was almost the only major operation in which the figures were lower than the previous year. The number of operations for myomata was considerable. There were 15 hysterectomies, all supravaginal, and 24 myomectomies. In a large proportion of cases it was found possible to save the uterus. All these cases, both hysterectomy and myomectomy, recovered. Twenty-five operations were performed for prolapse. Wertheim's interposition operation was done in 18 cases. Dr. Jellett's operation for shortening of the utero-sacral ligaments was done in 13 cases, in six of which the interposition operation was also performed.—Dr. PUREFOY thought many of the fatal cases of accidental hæmorrhage were due to the fact that accidental hæmorrhage was met with in patients with organic disease, who were badly able to stand the shock attending the hæmorrhage. He thought that in these cases vaginal tampons might be left in a little longer. He considered that one of the greatest risks and most serious mistakes was undue anxiety to empty the uterus quickly and before the patient had time to rally from the hæmorrhage. With regard to the introduction of early rising of patients after their confinement he was by no means convinced from what he had heard that the practice was to be recommended, nor did he consider the fact that no accidents had been reported in the cases treated as sufficient argument in favour of it. He suggested that the treatment might in future produce a number of patients suffering from misplacements, &c. It was very interesting

that the patient who was already septic on admission recovered so satisfactorily from the Cæsarean section and hysterectomy. It appeared to him that there had been an undue dread of performing Cæsarean section in cases in which there was a possibility of sepsis. Referring to the outbreak of sepsis during the year, he had great difficulty in accepting the explanation that it was due to the water-supply.—Mr. SHIELL said he was greatly in favour of the early rising of patients, and in private practice he had got nothing but the best results by its adoption. It was contra-indicated in prolapse or other complication. The advantages accruing from early rising were: stronger patients, quicker return to normal health, less constipation, and a distinctly more rapid involution of the uterus. As to venesection in eclampsia, he considered that if it were done sufficiently early it would be followed by beneficial effects. The report raised a very important point regarding cases of pubiotomy and symphysiotomy. If the patient, in whom a piece of bone came away, could walk after the operation all the power of the argument against such procedure disappeared. —Dr. E. HASTINGS TWEEDY considered a little fuller information might, with advantage, have been given in regard to eclampsia, where no mention was made of the quantity of fluid given, and to sepsis, where the steps taken to discover the cause of the infection were withheld. If it could be shown that the majority were cases of late infection the labour wards would have been put out of count. He could not accept the view that the tank water was a source of the sepsis. He inquired what arrangements the Master had made to cleanse them. When he was Master of the Rotunda Hospital he preferred to leave the tanks alone rather than run the risk of infection through the so-called cleaning. He considered it hardly fair to calculate the mortality percentage on the number of admissions rather than the total deliveries.—Dr. BETHEL A. H. SOLOMONS said the diminished morbidity was eminently satisfactory, especially when one took into consideration the ill-fortune attendant on the opening of the new labour wards. The operation of removal of septic thrombosed veins was one of the greatest advances in obstetric surgery. Dr. Jellett was to be congratulated on saving the lives of at least two patients by his prompt and daring operations. The statistical papers in the March number of *Surgery, Gynæcology, and Obstetrics*, on Cancer of the Uterus aroused wonder at the small number of cases of malignant disease of the uterus in this report. Gellhorn, in the above paper, noted that those who operated on most cases had the greatest percentage of cures, and quoted the figures of Franz, who operated abdominally on 82 per cent. of the cases seen. As Franz had better results than anyone else, his teaching seemed a beneficial one to follow.—Dr. GIBBON FITZGIBBON said the report had shown that Dr. Jellett was a strong advocate of myomectomy in preference to hysterectomy whenever possible. He inquired if anything was to be gained in doing Wertheim's operation where the primary disease was ovarian. He drew attention to the disparity between the figures for suture of perineal lacerations in the extern and intern maternity. In the former the number was 186 and in the latter 546. A table of patients who returned to hospital for subsequent confinement where myomectomy or suspension operations had previously been performed on them would be most instructive.—Dr. JELLETT, in replying, saw no reason that because midwifery practice had been managed on abnormal lines it should so continue. Drainage of the uterus was prevented by keeping the patient in bed, backward displacements were favoured, and the action of the bowels was interfered with. In hospital practice, in his experience, patients liked to be allowed up early. He attributed the reduced morbidity shown by the report to the fact that the patients were allowed up early. Regarding the outbreak of sepsis, he was not at all prepared to abandon the consideration that the outbreak was in part due to the new buildings and to the infection of the water tanks. The only point against the latter theory was that there was no sepsis in the operating theatre. When the Gynæcological Hospital was first opened violent sepsis occurred amongst the operation cases, while the labour wards were quite clear of it. He thought that there was always a tendency to sepsis where buildings were being interfered with. He detailed the methods adopted in cleansing the tanks.

Reviews and Notices of Books.

Medizinisch-biologische Familienforschungen innerhalb eines 2232 köpfigen Bauerngeschlechtes in Schweden. Von Dr. H. LUNDBORG, Dozent für Psychiatrie und Neurologie an der Universität Uppsala. Jena: Gustav Fischer. 1913. Pp. 519 and 220 supplement, with 50 genealogical trees. Price 120 marks.

THESE large volumes—entitled "A Medico-biological Family Investigation in a Swedish Peasant Family of 2232 Members"—represent many years of strenuous work in ascertaining and tabulating particulars as to the individual members of an enormous family inhabiting an isolated district, Listerland, in Blekinge, one of the southern provinces of Sweden. The original pair of ancestors were born as far back as 1721 and 1723, but particulars are also given of the parents of each and also of their brothers and sisters and their descendants. In all 2232 individuals are separately described. This gigantic task was much facilitated by the excellent way in which the church books and the records of the judicial courts have been kept in Sweden, but special difficulties were met with owing to the complete absence of surnames and the large number of separate individuals bearing the same cognomen.

In a work which has been inspired by the principles of Rassenbiologie, or, as it is called in England, eugenics, especially when enthusiastically hailed in the preface as convincing testimony of the need of eugenic methods by Professor Max von Gruber, of Munich, we are naturally suspicious of a possible inclination on the part of the author unconsciously to exaggerate the evil effects of bad heredity; but, as far as it is possible to judge from the perusal of his work, Dr. Lundborg seems to have maintained a completely impartial attitude in the collection of his material. Naturally in the summing-up his individual prejudices appear, and we find him laying great stress on misuse of alcohol as a cause of degeneracy in the progeny, believing that it tends to favour the development of unfavourable mutations in the germ plasm. The evidence in favour of this view in this particular family is only slender, and the possibility that drunkenness is always a sign of pre-existing defect is not discussed.

Dr. Lundborg commences by pointing out that the population in this southern sea-coast district differs from that of the rest of Sweden, in that there is a much larger proportion of dark-haired brachycephalic persons, evidently foreign to the light-haired dolichocephalic Swede. This foreign type was even commoner in the "great family" which was the subject of his investigation than in the neighbouring inhabitants, and it is of interest to observe that, as a rule, those who were of this complexion were less intelligent and less worthy citizens than those who conformed to the proper Swedish type. He was led to study the family by the occurrence in it of myoclonus epilepsy, on which disease he has already written a well-known monograph. He brings forward convincing evidence that this condition stands to the normal in the relation of a Mendelian recessive, this being the best example of a recessive abnormality that has been so far culled from human pathology. In all there were 17 cases in the main stock occurring in nine separate families. In eight of these the parents both belonged to the main stock, whilst in the ninth it is more than probable that the father as well as the mother was really a descendant of the original ancestors. It is also remarkable that these are the only examples of the condition known throughout the whole of Sweden. The abnormal members of these families come in the expected relation of about 1 to 4 normal, and the marriage of an affected person

with an unrelated healthy individual has always resulted in the offspring being all apparently healthy. An elaborate genealogical table is given in the second volume, showing the probable descent of the abnormality from one of the parents of the original forefather of the stock, in which it appears that half the children of the forefather carried the concealed abnormality and half were completely free from it, as would be theoretically expected.

Dementia præcox also showed itself with abnormal frequency in the "great family," there being 68 cases, and besides these there were 15 peculiar members who were not improbably slight examples of dementia præcox. The author supports with considerable probability of correctness the view of Rüdin, of Munich, that this form of insanity is a Mendelian recessive. In the same way he regards paralysis agitans, of which seven certain and two uncertain cases appeared in the family, as a Mendelian recessive; but naturally with a disease which appears so late in life the evidence in favour of this is much weaker than in the conditions previously mentioned.

There was also an abnormal proportion of feeble-mindedness amongst the members of the "great family." Dr. Lundborg wisely refrains from discussing the heredity of this ill-defined condition, which has been regarded as a Mendelian dominant, and the facts he adduces do not add much to our knowledge of the subject. Though the author is evidently a believer in Mendelism, he apparently also considers that abnormal traits may be gradually eliminated out of the race by marriage with better equipped persons, presumably by a process of blending. In-breeding was very frequent in the family, and he remarks on the improvement that has apparently taken place in the branches whose ancestors have emigrated and married abroad. But recessive traits would not be expected to appear in these circumstances, though still present in a proportion of the children, and there is also the possibility that those persons who had the energy and initiative to escape from the district were on the whole the best specimens of the race.

The original founder of the stock was a well-to-do farmer, and in the earlier generations a few decidedly gifted individuals appeared. The family as a whole seems to have gone downhill since then. Very few of its members entered the secondary schools, and as a rule their intelligence seems to have been decidedly below the normal. The modern representatives are also in a lower social position than their forebears. The fecundity of the women was remarkable, and it is also striking that the death-rate was lower than the usual death-rate in the surrounding population. Naturally where the parents were drunkards or bad characters there was a high infantile mortality.

In congratulating the author on the completion of this the most important piece of work of its kind, we can re-echo his appeal for further research on the same lines. There is a natural tendency to investigate only those families in which some striking abnormality appears, and for the moment perhaps the most valuable results are to be obtained from these. It is important that as early as possible some agreement should be arrived at as to what are the signs of "degeneration" in human beings, and that such adjectives as "feeble-minded" and "neuropathic" should have a definite and precise meaning. In the study of human heredity it is essential that every individual of the family should, as here, be characterised, and even the miscarriages recorded. On the other hand, as Dr. Lundborg points out, normal breeds would also repay investigation, and a fruitful field of research is here opened up to the medical practitioner, particularly in isolated country districts. In this as in other branches of scientific work central organisation and assistance are required. We in England can express our envious admiration of the generous help afforded Dr. Lundborg in his expensive and arduous task, though the financial part of the assistance fell far short of his actual disbursements. No expense seems to have been spared in the publication, perhaps to the chagrin of future readers, since the size and weight of the volumes make them very uncomfortable to handle, while the price, £6, renders them inaccessible to many students of the subject, which is very unfortunate.

The Hill Folk; Report on a Rural Community of Hereditary Defectives. By FLORENCE H. DANIELSON, M.A., and CHARLES B. DAVENPORT. August, 1912. Memoir 1. Pp. 56.

The Nam Family: A Study in Cacogenics. By ARTHUR H. ESTABROOK and CHARLES B. DAVENPORT. August, 1912. Memoir 2. Pp. 85.

Heredity of Feeble-Mindedness. Reprinted from the *American Breeders' Magazine.* By HENRY G. GODDARD, Ph.D. Vol. I., No. 3. Bulletin 1. Pp. 165–178. 1910.

A First Study of Inheritance in Epilepsy. Reprinted from the *Journal of Nervous and Mental Disease.* By C. B. DAVENPORT and DAVID F. WEEKS, M.D. Vol. XXXVIII. No. 11. Bulletin 4. Pp. 641–670. 1911.

A Study of Heredity of Insanity in the Light of the Mendelian Theory. Reprinted from the *American Journal of Insanity.* By A. J. ROSANOFF, M.D., and FLORENCE I. ORR, B.S. Vol. LXVIII., No. 2. Bulletin 5. Pp. 221–261. 1911.

The Trait Book. By C. B. DAVENPORT. February, 1912. Bulletin 6. Pp. 52.

The Family History Book. By C. B. DAVENPORT. September, 1912. Bulletin 7. Price 50 cents. Pp. 101.

THE above are the publications of the Eugenics Record Office, Cold Spring Harbour, N.Y., and are arranged as Memoirs and Bulletins. We are apt to regard a family as a small unit which in itself can have little effect on the community as a whole. Nevertheless, this view may be quite erroneous, since it has been clearly shown that by the multiplication of one stock or of two of similar type which intermarry, the social conditions of a whole district may be determined. In the neighbourhood of a small town which lies "in a fertile river valley among the New England hills" lives a population among whom feeblemindedness, immorality, and alcoholism are particularly common. The investigations of the Eugenics Record Office led them to the study of this locality, and it was found by Miss Danielson, a "field worker" of this institution, that practically all its less desirable inhabitants could be traced back to one of two original sources—namely, "a shiftless basket-maker," possibly of French origin, and an Englishman, both of whom migrated into this district about the year 1800. Their descendants, referred to collectively as the Hill Folk, are described individually with considerable detail in Memoir No. 1. Between 1879 and 1889 they absorbed almost one-tenth of the whole amount spent by their town in Poor-law relief; but in the last decade the proportion had risen to more than a quarter. In the past 30 years 16 of them were sentenced for serious offences, mostly of a sexual character, and their punishments imposed a burden on the State of about $10,000. A glance at the extensive pedigree charts shows that feeblemindedness abounds in many of the lines, and Professor Davenport has written a special chapter on its inheritance as illustrated among these people. In this chapter he puts forward tentatively a theory which differs considerably from that suggested in the memoir previously published by himself and Mr. Weeks on the inheritance of epilepsy. According to the earlier view, normal development depends on the presence of a gametic factor transmitted in a Mendelian way. Its total absence is shown by the development either of epilepsy or feeblemindedness. Among the logical consequences of this theory it followed that two feebleminded

persons were incapable of having normal children, since all their children must be devoid of the normal development factor, and thus can only be either epileptic or feebleminded. The results now obtained do not agree with this or other expectations aroused by the theory. In particular where two defectives were mated together only one-half of their children were found to be defective. Professor Davenport, therefore, arrives provisionally at the following conclusions:—"The analysis of the data, then, gives statistical support to the conclusion abundantly justified from numerous other considerations, that feeblemindedness is no elementary trait, but is a legal or sociological, rather than a biological term. Feeblemindedness is due to the absence now of one set of traits, now of quite a different set. Only when both parents lack one or more of the same traits do the children all lack the traits ..... If each parent brings into the combination the traits the other lacks, all of the children may be without serious lack and all pass for 'normal.'"

In Memoir No. 2 is described a large family of somewhat similar character to whom the fictitious name of "Nam" has been applied. Their racial origin is somewhat mixed. They are descended from "Joseph Nam," who lived in the mountains of Western Massachusetts about the year 1760, and was himself one of a set of people who owed their origin to the union of a roving Dutchman and an Indian princess. Of the descendants of Joseph Nam's eight children some prospered, but the majority sank into the lowest social grade. Many now live in the depths of poverty in more or less isolated groups of hovels, overcrowded and devoid of sanitation, and in every way discreditable to the administration which allows such conditions to exist. Records of 784 Nams have been obtained, concerning whom the authors state that 88 per cent. of the females and 90 per cent. of the males were given to drinking in excess. "180 children of all considered here were born out of wedlock. There are 232 licentious women and 199 licentious men, as contrasted with 155 chaste women and 83 chaste men. Combining the Nams and out blood, we find 19 epileptics, 24 insane, of whom 7 have been in custodial care, 3 in a girls' home and 15 in an orphan asylum, and 40 in State's prison or in jail."

Enough has been said to give some idea of the scope of these memoirs and of the type of family dealt with by them, while they gain an added interest when compared with Dr. Lundborg's important work which is reviewed above. It remains to make some mention of the way in which they are produced. The print and paper are worthy of an edition de luxe, and have been paid for by Mr. Rockefeller. The relationships of the various individuals described to one another are demonstrated by some remarkable pedigree charts, in which each generation is arranged in a circle outside the preceding one. The outer circle on the largest diagram has a diameter of something like 2 feet. Thus, if it had been spread out in a straight line, as in the more conventional arrangement, a plate more than 6 feet long would have been required.

Of the bulletins little need be said, as the majority were published in 1911 and earlier. Of the two most recently issued, No. 6—"The Trait Book"—gives an elaborate analysis of such mental and physical qualities as it may be necessary to diagnose in the study of human inheritance. A decimal system of classification is adopted. Thus 4 stands for mental traits, 42 for feelings, 423 tastes for special occupations, 4232 for reading, 42326 for reading prose, 423261 for reading artistic prose. Considerable attention is devoted to the classification of eye colour, and a coloured plate is provided as a guide to investigators. We are glad that some of the eyes illustrated in this plate are uncommon among our acquaintances. Bulletin No. 7—"The Family History Book"—contains pedigrees of a few families elucidated by detailed descriptions of the various members. These are intended apparently to indicate the manner in which such records as those in the memoirs should be collected and summarised, as practical directions are also contained in the volume.

We conclude by expressing our admiration for the work of the Eugenics Record Office, and our hope that it may long continue under its present enterprising administration.

Zur Morphologie der Nierensekretion unter Physiologischen und Pathologischen Bedingungen. Von Dr. T. SUZUKI, Arzt in Japan. Mit einem Vorwort von Professor L. ASCHOFF, Freiburg i.B. 6 Tafeln. Jena: Gustav Fischer. 1912. Pp. 244. Price 15 marks.

Professor Aschoff, of Freiburg i.Br., in whose laboratory the experiments detailed in this monograph were carried out, in the preface states that in his opinion acute nephritis falls into two groups, one with the salient features of inflammation of the connective tissue of the blood-vessels, and the other in which the chief reaction affects the tubular and glomerular apparatus—the purely tubular form may be called parenchymatous nephritis, which under proper conditions usually tends to heal. The author undertook to test the functional activity of the kidney under normal and pathological conditions with the aid of intra-vitam colouration, a method for this and other purposes largely used by Arnold, of Heidelberg. The method consisted in injecting subcutaneously into animals a few cubic centimetres, according to the size of the animal, of a 5 per cent. solution of carmine in a saturated solution of lithium carbonate, and after 24 hours repeating the injection, killing the animals at variable times and observing the results. The kidneys were fixed in a 10–20 per cent. solution of formol, which also allowed sections to be stained for "granula" by Altmann's method—i.e., rubin S. and picric acid.

The monograph consists of a special part of 180 pages and a general part of about 50 pages. In the former a very elaborate and detailed account is given of the effects observed in normal rabbits, mice, rats, guinea-pigs, hedgehogs, and pigeons when lithium carmine is injected. Having determined this, experiments were made on producing artificially hydronephrosis by ligature of the ureters. The chief experiments, however, and they are numerous and given with a great wealth of detail, consisted in the subcutaneous injection of such substances as uranium, mercuric chloride, chromium salts, cantharidine, arsenic, common salt, and drugs causing hæmoglobinuria, such as glycerine. In some cases—e.g., with uric acid, urea, lactose, caffeine, oxalic acid—the drugs were injected into veins. The effects of ether narcosis, starvation, and thirst were also studied. After a certain time the carmine solution was then injected. The plates are excellent, but the figures relating to any one drug are so assorted that reference may have to be made to different plates. The author adopts the nomenclature of the several parts of a uriniferous tubule laid down by Peters. In normal animals the carmine is laid up and stains the granules in the proximal convoluted tubule, which the author calls the chief part, but the several parts of the tubule are not equally rich in carmine-stained "granula." His experiments with the injection of drugs lead him to conclude that the chief part, or the proximal convoluted tubule—i.e., next the glomerulus—has not the same function throughout, for he finds that there are three more or less distinct areas differing in relation to drugs and also in their structure, importance being attached to the "brush border" of the cells, the basal rodded character of the lining cells, and the number and size of the granula. These several parts have different elective

affinities; thus, uranium produces changes in the distal part of the convoluted tubule, mercuric chloride does the same, but the transitional part is also affected, while cantharides and chromium affect the proximal part next the glomerulus. The author gives a careful analysis of his results and draws a sharp distinction between the "laying up" of carmine granules in the convoluted tubules and the excretion of carmine in the urine. The results are of great interest, more especially to pathologists and clinicians.

Retinoscopy. By JAMES THORINGTON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic. Sixth edition. With 61 illustrations, 10 coloured. London: Rebman, Limited. 1912. Pp. 71. Price 4*s.* 6*d.* net.

ENGLAND was the birthplace of retinoscopy, and Bowman its father. France and Cuignet nursed it into vitality, but England and the Moorfields Hospital proved that it was the method *par excellence* of determining errors of refraction of the eye. It remained for the medical profession of the United States to confirm and extend the knowledge, which they would agree they learnt first at Moorfields, and among the many American ophthalmic surgeons who have devoted much labour and investigation to the theory and practice of retinoscopy the name of Thorington holds an honoured place. Dr. Thorington has brought his book up to date by the addition of new illustrations as well as of illustrations of new apparatus. Apart from minor details of revision the book retains its familiar characteristics. It is clearly written and eminently practical. As an introduction to retinoscopy we know of no better guide, but those who seek for knowledge of the somewhat complex theory of the subject must seek elsewhere.

A Text-book of General Bacteriology. By EDWIN O. JORDAN, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Third edition, thoroughly revised. Fully illustrated. London and Philadelphia: W. B. Saunders Company. 1912. Pp. 623. Price 13*s.* net.

THIS is the third edition of a work originally published in 1908. It would seem, therefore, that it is much appreciated. The chief characteristic of the work claimed for it by the author is that it treats the subject as part of a general liberal scientific education and not merely as part of the technical education of the medical man. As a consequence the ground covered is rather more extensive than that usually dealt with in medical manuals, though neither in this respect nor in the method of treatment is the difference great.

As the earlier editions have been fully reviewed in these columns, it is necessary to refer only to the chief changes in the present edition. The work is lengthened by some 30 pages, and there are alterations in a few of the illustrations. There is little rewriting, but additional sections in some of the chapters give the results of recent work. It has been necessary to alter considerably the chapter on leprosy. The experiments of Clegg and Duval on the cultivation of the bacillus are given, but the subject is hardly brought up to date, as there seems to be no mention of the varying forms and staining reactions of the organism or of the work of Rost, Bannerman, Deycke, or Kedrowski. In relation to cholera and typhoid fever the important question of carriers is discussed. Rapid methods of cholera diagnosis as developed for quarantine work are given, and the question of the recognition of allied spirilla is discussed. The chapter on typhoid fever has also received additions. In the appendix on diseases of unknown causation recent work has been incorporated, especially Bernhardt's work on scarlet fever, which seems to indicate that the micro-organism concerned is a filter-passer, and the researches of Hektoen and Anderson and Goldberger on measles. It is stated that typhus fever and Rocky Mountain spotted fever, though similar, have now been shown to be distinct. The recent important work on anterior poliomyelitis is also briefly sketched. There are additions also in the section on plant diseases.

The appearance of the work and the printing, as in the previous editions, are good, and the illustrations are well reproduced.

Pye's Surgical Handicraft. A Manual of Surgical Manipulations, Minor Surgery, and other Matters connected with the Work of House Surgeons and Surgical Dressers. Edited and largely rewritten by W. H. CLAYTON-GREENE, B.A., M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon to St. Mary's Hospital. Sixth edition. Bristol: John Wright and Sons, Limited; London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1912. Pp. 595. Price 12*s.* 6*d.* net.

FOR more than a generation "Pye's Surgical Handicraft" has enjoyed a well-deserved popularity amongst practitioners for the valuable aid it renders towards solving many of the difficult problems of minor surgery, and it is especially useful to house surgeons and dressers in their daily work. But books tend to grow old, and Mr. Clayton-Greene, by the thorough revision to which he has subjected this work, has succeeded in giving it a new lease of life. He has enlisted the aid of others in special branches of the subject, and the result is all that could be desired. Every dresser and house surgeon will find in the pages of this volume information which will materially assist him in his work.

Lehrbuch der Augenheilkunde. Edited by Dr. THEODOR AXENFELD, Professor of Ophthalmology in Freiburg i.Br. Third edition. Jena: Gustav Fischer. 1912. Pp. 761. Price 15 marks.

A NEW edition of Axenfeld's text-book of ophthalmology has been called for each succeeding two years. The last edition is a considerable improvement upon its predecessors. The difficulty of obtaining uniformity of treatment and a good balance in a work written by many authors was conspicuous in the first edition, but has now been largely overcome. The illustrations have been greatly improved, and the coloured plates now form in themselves a very valuable ophthalmoscopic atlas. The most recent advances in operative treatment, such as trephining for glaucoma, are briefly described and illustrated. We commend the book warmly to students who are sufficiently acquainted with the German language.

The History of the Prison Psychoses. (Nervous and Mental Disease Monograph Series, No. 13.) By Dr. PAUL NITSCHE and Dr. KARL WILMANNS. Authorised translation by FRANCIS M. BARNES, Jun., M.D., and BERNARD GLUECK, M.D. With an Introduction by WILLIAM A. WHITE, M.D. New York: Journal of Nervous and Mental Disease Publishing Company. 1912. Pp. 84. Price $1.25.

THIS critical and historical review of the subject of the prison psychoses deals exclusively with the German literature on the question, and within these limits is admirably thorough and careful.

Starting with the pioneer work of the elder Delbruck, who in 1853 published his observations on the cases of insanity occurring amongst the inmates of the penal institution of Halle, the authors discuss the varying opinions which have been held by the different psychiatric schools down to the present time regarding the conception of a specific prison psychosis. They divide their review into three parts. In the first they consider the works

of the older school, represented by Delbruck, Gutsch, Sommer, and Kirn, whose studies, dealing with somewhat different classes of material, established the existence of a number of distinct clinical groups of mental disorder as tending to develop under the conditions of imprisonment. Amongst the alienists of that period there was a good deal of disagreement as to the relation in which the imprisonment stood to the psychosis, a disagreement due no doubt in part, as the authors of this essay point out, to real differences in the clinical data no less than to doctrinal antagonism. The second period in the history of this question was dominated by Kraepelin's teachings, and notably by his conception of dementia præcox, which to many writers of that time, as of to-day, became a convenient label to attach to any and every sort of mental disorder, especially when marked by more or less anomalous symptoms. Finally, in the last period, the characteristic influence is that of the doctrine of degeneracy as formulated by Magnan, whose brilliant work was made familiar in Germany through the teaching of Möbius.

Under this influence it has been found possible to reconcile the divergent views of the older writers, so that it is now generally accepted that the prison psychoses in the large majority of instances imply an abnormal predisposition, and are, in fact, the reaction of a psychically diseased constitution to the physical and psychical traumata involved in imprisonment. It is interesting and instructive to observe that even in the country of its origin Kraepelin's great generalisation should thus be found inadequate to explain the clinical facts of the insanity of the criminal, and that it should be necessary to fall back on the teaching of Morel and Magnan, which it was so much the fashion until recently to decry as crude and obsolete.

The essay is a valuable contribution to the literature of psychiatry, and should appeal not only to persons interested in the special points discussed, but also to those who desire to keep up with the movement of ideas in criminology. The translators have done their work conscientiously, but their version shows rather too obvious traces of the German original.

L. Landois' Lehrbuch der Physiologie des Menschen, mit besonderer Berücksichtigung der Praktischen Medizin. Dreizehnte Auflage. Bearbeitet von Prof. R. ROSEMANN. Erster Band. Mit 132 Abbildungen und 1 Tafel. Berlin and Vienna: Urban and Schwarzenberg. 1913. Pp. 464. Price, paper, 9 marks; bound, 10 marks.

ORIGINALLY published in 1879 this work has justified and maintained its high reputation, for now we have the thirteenth edition. The main characteristics, as originally planned by the late Professor Landois, have been adhered to, and, as in previous editions, special attention is given to the applications of physiology in the domain of practical medicine. Every chapter has been revised since the last edition was issued. The changes are more numerous in the text than in the illustrations. As to some of the latter, several which are purely anatomical might be omitted, and in this way space obtained for the introduction of figures of more pressing physiological importance. There is not much need, for instance, for two large figures of the perineal muscles.

A useful chapter on the chemical composition of the organism now precedes what used to be the first chapter—viz., that on the blood. The subjects dealt with are the physiology of the circulation, respiration, digestion, absorption, metabolism, secretion, and animal heat. Each subject has a useful bibliography appended. As to the movements of the intestine, we think that the introduction of more details of the work of Bayliss and Starling, with the addition of tracings and illustrations of X ray work in this department, would be a distinct improvement. The same might be said as to the adding of more tracings of blood pressure obtained under different conditions, while some schemata or diagrams would help to elucidate the text in connexion with the digestive process generally, and more especially to illustrate the work of Pawlow. Now that good microscopical illustrations of human organs are available it might be well to substitute these for similar illustrations of the dog or other laboratory animals. Under metabolism a few useful pages of detailed information are introduced on regeneration, transplantation, growth and union of tissues, which rarely find a place in English text-books on physiology. The chapter on ductless glands and internal secretions is a sort of peptonised account of this complex subject. Again we think that a few illustrations would help the student.

We have ventured to make these suggestions for the consideration of the editor, but while doing so we are of opinion that this text-book is still one of the most comprehensive presentations of the various aspects of physiology that exist in any language, and we hope the editor will be able to issue the second part as promised in the spring of the present year.

LIBRARY TABLE.

Parasitology. Edited by G. H. F. NUTTALL, F.R.S., and A. E. SHIPLEY, F.R.S., assisted by EDWARD HINDLE, Ph.D. Vol. VI., No. 1, April 17th, 1913. London: C. F. Clay, Cambridge University Press. Price 10*s.* net.; yearly subscription £1 10*s.*—The opening article, Observations on British Rat-fleas, contains an account of work undertaken for the Local Government Board in 1911, in connexion with the outbreak of plague in East Anglia, and is divided into two parts. The first of these—Report on Rat-fleas in Suffolk and North Essex, by C. Strickland and G. Merriman—is of considerable interest from the point of view of plague transmission in England. Two species of fleas—Ceratophyllus fasciatus and Ctenophthalmus agyrtes—comprised 93 per cent. of those collected from rats, but in addition 13 other species, eight of them recorded for the first time, were found on the same host. C. fasciatus is the most prevalent flea occurring on rats about human habitations, whilst C. agyrtes is more common on those caught in hedgerows. The former will readily bite man, the latter never; therefore, it is evident that, of these two species, C. fasciatus is the more important flea concerned in the transmission of plague from the rat to man. The average number of fleas per rat and the percentage of rats infested by fleas showed a marked seasonal variation, there being a considerable decline in the numbers as the cooler weather approached. The second part, Observations on Rat-fleas in Cambridgeshire, by G. H. F. Nuttall and C. Strickland, contains a brief record of the number of fleas captured on rats in the neighbourhood of Cambridge during 1909–1911.—The Anatomy of Argas Persicus (Oken, 1818), by L. E. Robinson and J. Davidson, is the first part of a very elaborate account of the anatomy of this common tick. Considering the importance of the Argasidæ in relation to the transmission of disease, all workers on the life-cycles of pathogenic micro-organisms transmitted by ticks will welcome this detailed description of an example of the family, which is accompanied by numerous plates and text-figures.—A Note on Colouration in Ticks, by G. H. F. Nuttall, calls attention to the marked differences in colour between living and dead specimens of the same species of tick. The article is illustrated by a coloured plate showing the changes undergone by Amblyomma variegatum and A. splendidum respectively.—A Sarcocyst of a Gazelle (G. rufifrons) showing Differentiation of Spores by Vital

Staining, by Andrew Balfour, contains the description of a new species of Sarcocystis, S. gazellæ, in which the author was able to distinguish two kinds of spores by means of vital staining with toluidin blue.—Ankylostomiasis in Grenada, by R. P. Cockin, not only comprises an account of the prevalence of this disease in Grenada, but also contains useful suggestions as to the measures to be taken to free the colony from it. The author has tested the effects of thymol, betanaphthol, eucalyptus oil, castor oil and chloroform respectively, on the removal of the parasites. The only satisfactory compound was found to be betanaphthol, as it quickly expelled the parasites, and moreover was cheap, and its administration was not followed by serious after-effects. With regard to thymol, the author remarks that when given in full doses of 30 grains it is dangerous and if in smaller doses is not effective, for when given to a fully-developed man in 20-grain doses it occasionally took as long as a month to rid him of the parasites. Accordingly, the action of the Porto Rico Commissioners in the free distribution of thymol is strongly condemned and considered to be very dangerous, as many of the natives suffer from dilatation of the heart, and, moreover, are extremely careless in attending to instructions regarding the taking of drugs.—Observations on the Biology of Ixodidæ, by G. H. F. Nuttall, contains descriptions of the biology and life-cycles of the following species of ticks: Ixodes putus, I. canisuga, I. hexagonus, I. ricinus, Hæmaphysalis leachi, H. punctata, Hyalomma aegyptium, and Rhipicephalus appendiculatus. Most of these species are concerned in the transmission of various animal diseases, and therefore this account of their biology is of the greatest value, as hitherto precise information of the life-histories of these ticks has been wanting. In every case they have been reared in the laboratory, and the author gives full directions of the methods employed for raising these parasites. A record of the biology of any tick should contain the following data: The time the tick remains upon the host; the behaviour of the sexes either on or off the host, together with notes on copulation; the time required for the metamorphoses from stage to stage; oviposition; longevity of the various stages; and the part played in pathology. In every case Professor Nuttall has endeavoured to supply these particulars.

The Medical Who's Who, 1913. Published annually. London: The London and Counties Press Association, Limited. Pp. 594. Price 10*s.* 6*d.* net.—Some prejudice was not unnaturally aroused against the lines on which it was originally proposed to publish this book as a selected list of medical men, but the publishers must be given credit for having endeavoured to remove all just ground for professional objection. It contains the names of all qualified practitioners who make the necessary returns on the form sent to them, and no condition attaches to the inclusion of the name. The book is primarily a personal, not a professional, record, though in the nature of things professional details necessarily come a great deal to the fore. It differs from the medical directories in giving information as to date and place of birth, parentage, early education, and other matters not directly connected with the practice of medicine or with medical science.

Clinique et Thérapeutique Obstétricale du Praticien. By P. RUDAUX, with the collaboration of A. GROSSE and V. LE LORIER. Paris: Vigot Frères. 1913. Pp. 890. Price Fr. 8.—The object of this work is to place in the hands of the practitioner when he is in difficulties information which will permit him to make an exact diagnosis and to apply rational treatment. The book contains nothing relating to the history of any disease, nor is there any discussion of pathological theories or descriptions of the pathological anatomy of the conditions considered. The authors have aimed at treating in considerable detail the various points concerned in diagnosis, and more particularly at laying stress on those which are of practical importance. It is, however, more especially treatment to which they have given the most space, and they have endeavoured to describe only those methods which not merely give the best results but which are the easiest to employ. The book is arranged in an alphabetical manner because the authors intend it to be a sort of dictionary of obstetric medicine in which information upon any particular subject can be found at once without reference to an index. In this book the student will find a great deal of valuable and practical information upon all the conditions which may affect the woman during pregnancy, parturition, and the puerperium, and also the various affections of the new-born child. The treatment recommended appears to us to be based upon sound lines and to exhibit a wise conservatism fitted to render it of value to the general practitioner, who no doubt will find the book the practical and helpful guide the authors intend it to be.

JOURNALS.

IN the *British Journal of Inebriety* for April Dr. H. Crichton Miller enters a vigorous plea for the recognition of the psychological factors in the treatment of alcoholism. He maintains that psychotherapy in one or other of its forms, as persuasion, suggestion, psycho-analysis, or even as restraint (which acts essentially through its mental influence), is competent to cure a very large proportion of inebriates, if due care be exercised to adapt the mode of treatment to the peculiarities of the individual case and if the psychic treatment is supplemented by remedies addressed to other special factors in the etiology, such, for instance, as circulatory disorders or epilepsy. Dr. Miller suggests that a very great financial saving might be effected and much more lasting results might be obtained by using the opportunities of enforced detention in prisons or reformatories for the vigorous and scientific treatment of the chronic drinkers on psychic lines. He also advocates as a cheap and effectual reform the establishment of anti-alcoholic dispensaries for the application of this and other therapeutic measures. An article on Children and Liquor Bars, by Mr. John Newton, deals with some of the undesirable results which have followed from the provisions of the Children Act of 1908 excluding children under 14 years of age from the bars of licensed premises. The writer of the article admits that the very general practice which has come into vogue of leaving the children at the door while the parents are drinking inside is a grave evil, but he believes that it should be possible to find a remedy by further legislation of a coercive character. It is regrettable to observe the inability of sane temperance reformers to realise the fact that, as public opinion is not going to enforce total abstinence, the rational course to pursue should be to reform the public-house so that it need not be a worse place for children than the gutter. A short paper by Professor G. Sims Woodhead on Alcohol and the Undergraduate also appears in this number.

DEATHS OF CENTENARIANS.—The death occurred recently at Hove of Mr. Frederick Halsey Janson, who on Feb. 8th reached his hundredth birthday. Mr. Janson was the oldest solicitor in the United Kingdom, having been admitted in 1835.—The death is announced from St. Petersburg of Mdlle. N. M. Bashmakoff, the *doyenne* of the Russian Red Cross Sisterhood, at the age of 103, who worked in the Crimean war of 1854–6 under the eminent Russian surgeon Pirogoff.

THE LANCET.

LONDON: SATURDAY, MAY 17, 1913.

The Insanitary Condition of Merchant Vessels.

IT is customary in these days to complain of over-inspection, and the complaint is not unfrequently extended to the intrusions of the sanitary inspector, who is classed with other harassing individuals who disturb the peace of the householder and the pockets of the owners of property. There must be few objectors, however, who are not candid enough to admit the enormous benefit which is derived from steady inspection of houses under the Public Health Acts in diminishing gross overcrowding, securing wholesome conditions of storage of water and food, providing healthy methods for the disposal of sewage and refuse, and enforcing reasonable standards of ventilation and cleanliness. This unobtrusive work, quite as much as some more showy and popular measures of hygiene and disease prevention, has contributed substantially to the decreasing death-rate and the extending expectation of life in the general population of the United Kingdom with which we have become familiar. It is well, therefore, to remember that one section of our population remains to a large extent outside the benefits of this supervision—the seafaring man in the mercantile marine and coasting trade. It is true that the sanitary authorities of our various ports make provision, usually of a satisfactory kind, for the isolation of cases of infectious disease among seamen, and that sailors' homes and seamen's lodgings on shore are now much better looked after than was formerly the case. But unfortunately these authorities can do little to prevent the seaman from being exposed during his life on the ship to conditions of environment that would not be tolerated for a moment on shore. A ship while in port can, for certain purposes, be treated by the port sanitary officers as a house under the Public Health Acts; but it is obvious that once a ship has been constructed on wrong lines as regards the accommodation of the crew no notices from the authorities of a port at which she calls will serve to improve matters, while if the crew's quarters are not capable of being cleansed and ventilated in an effective manner those who are responsible for the ship at sea will give themselves very little trouble to secure either cleanliness or ventilation. Such questions as the amount of cubic space per man, air inlets, food stores, lighting and lavatory accommodation are understood to be in the province of the Board of Trade, a department whose requirements seem to be governed by sanitary standards which even 30 years ago would have been considered inadequate. The low standard of British shipbuilding in these respects naturally reacts upon that which is undertaken by foreign countries, whose shipbuilders take their cue from the English practice, and we find year after year in the reports of port medical officers of health the same complaints of the perpetuation of unsatisfactory arrangements in British and in foreign ships.

In his last annual report to the Newport port sanitary authority Dr. J. HOWARD-JONES, who has taken a special interest in the matter, again discusses this important question. Inspections were made in 1912 of 1405 vessels entering the port "from foreign" and 1809 entering "coastwise" direct from other British ports. Over 15 per cent. in each class were found to have sanitary defects on board, while in regard to construction it was sometimes found, even in the case of new vessels, that the lenient requirements of the Board of Trade had not been observed. In the forecastle, where tradition usually places the crew, the departmental rule requires two ventilators to be provided, but as a rule only one of them is a deck ventilator, and this is commonly put out of action by being used as an outlet for the stove-pipe. The alley ways leading to the officers' and engineers' quarters are also often badly ventilated, to the detriment of the air in the rooms leading out of them. Chain lockers are a frequent source of unnecessary nuisance. The filth carried on board from docks and wharves by the anchor chain ferments and gives off offensive smells, and where the chain lockers are made of wood these smells freely penetrate into the adjoining forecastle or into the food lockers, which are often fitted to the chain lockers. Dr. HOWARD-JONES states that the type of water-closet often provided on British vessels—even on some of the newest—has long since been condemned by sanitary officials, and gives instances of the way in which necessary closet accommodation when provided is afterwards used for other purposes on account of the failure of the shipbuilder to provide sufficient space for ship stores. The so-called standard of 120 cubic feet per man is of itself extremely low, and the objections to it are increased on consideration of the nature and quality of the ventilation usually provided, and the way in which the same quarters are used by men on different watches. It is difficult to believe that the limit could not be materially increased without perceptibly affecting the commercial value of the vessel. Marine surveyors of the Board of Trade are said to make the standard of adequacy of the lighting of the crew's quarters the ability to read ordinary newspaper print in any part of the space when the ship is new and the paint clean. Few vessels, however, would pass such a standard under working conditions, and the report draws attention to the custom in most English vessels of fitting the bunks against the sides of the ship so as to obstruct the entry of light from the portholes. As a result the greater part of the floor space is always in darkness, and naturally does not get cleaned. As Dr. H. WILLIAMS, the medical officer of health of the Port of London, has observed, persons who travel by steamer and sleep in state-rooms below deck are often too cognisant of the imperfect ventilation found in ordinary steamers even under such favourable circumstances, where the state-room is inhabited usually for only a few hours at night. They can easily imagine the condition of the seamen shut

up in quarters below deck which are practically in constant use as a sleeping, living, and dining room, generally dark, dirty, damp, and encumbered with clothing, and where also, in some of the smaller vessels, the men have to keep their food, which they provide themselves.

Until the legislature or the Government departments concerned take a more practical interest in the welfare of seamen in these respects, pulmonary tuberculosis and various forms of disease associated with dirt must continue to be a cause of much preventable sickness amongst men of this class. The difficulty of obtaining capable seamen for the ordinary cargo boat of the merchant service is often complained of, while it is said that the seaman of to-day is becoming degenerate and undisciplined. Whatever truth there may be in these allegations, the unwholesome environment in which the ships crews are frequently placed can hardly be without influence on the question. If it be the case that the Board of Trade, in dealing with the matters to which we have referred, has hitherto depended on the opinion of officers who are without any sanitary knowledge, and have accepted objections made by interested shipowners without expert investigation, we consider that it is quite time for new methods to be introduced, and we hope that they will be pressed on Mr. BUXTON'S attention by those who make special claim to represent the interests of labour in Parliament. The sanitarian, shipbuilder, and shipowner should be brought together. Dr. HOWARD-JONES suggests the early appointment of a representative departmental committee for this purpose, and this seems a practical and convenient road to progress.

De Senectute.

NOT all of us attain old age, but the expectation of life is daily increasing, owing to the advances which have been, and are being, made in the science of hygiene. Therefore as a progressively increasing percentage of the population may look to arrive at length of days, it is as well to consider how the natural infirmities of old age may be avoided as far as possible, or at least minimised where they cannot be wholly escaped. To the ancients old age, as a rule, appeared as a time when the pleasures of youth were no longer capable of being enjoyed, and therefore, as CEPHALUS says in PLATO'S "Republic," the common complaint of old men is that the pleasures of youth having fled away slights are put upon them by their relatives. However, CEPHALUS adds that this distressing position is not the inevitable fault of old age, for that he himself is old and does not suffer in this way. CEPHALUS felt that old age brings a sense of calm and freedom, and as to bad treatment of the aged by their relations, its cause is to be sought, not in the age of the man, but in his character and temper. The man who is of a happy temper will scarcely feel the pressure of age—while he misses the stirring joys he welcomes the equanimity. Despite these somewhat optimistic views, it is a matter of common knowledge that the old are naturally inclined to be querulous and to compare the manners and customs existing in their youth with those extant at the present day, greatly to the disadvantage of the latter. Nor is this anything new, for it has been a characteristic of the old in all ages. Even the veteran not uncommonly met with in these times, who declares that "the service is going to the devil," finds his prototype as long ago as the Iliad, in which NESTOR, the veteran, exhorts his followers to fight in the old-fashioned way, which he says "is far the better."[1]

It is only to be expected that failing sight, failing hearing, diminished muscular activity, and the many other defects of increasing age should bring to those who come to be aware of them regrets or even repining—that melancholy, in short, of which BURTON gives old age as one cause. But much may be done to lessen the discomforts and disabilities of age, and the problem of how this is best to be done is treated at length in a work by Professor ROBERT SAUNDBY, the title of which is "Old Age: its Care and Treatment."[2] Professor SAUNDBY discourses pleasantly in his first chapter upon the duration of life and upon certain of the aspects of old age as seen in literature, and gives some details of the lives of those who have attained the age of 100 years or so. He notes that LUIGI CORNARO, who died at 100, without pain or agony—i.e., struggle—"and like one who falls asleep," never mentions fruit or vegetables in the dietary which he embodied in his work, "Sure Methods of Attaining a Long Life." CORNARO was a Venetian, born in 1467, and it may be that if he did avoid fruit he was led to do so from the reading of a passage in the "Rosa Medicinæ," printed at Venice in 1503, in which the author, JOANNES DE GADDESDEN, inveighs against fruit and quotes GALEN as saying that his father attained the age of 100 years because he never ate fruit. Longevity is found under the most diverse circumstances: the ascetic and the man of the world both attain to it. If ST. ANTONY reached the age of 105 after a life in the desert, TITIAN, who spent his life in courts, died in his hundredth year, and then from the plague. Heredity would seem to play a part in longevity; we ourselves know of the record of a family of nine members whose record in 1899 stood thus: the first four were dead, aged respectively 79, 60, 85, and 84; the fifth member died in 1904, aged 90; the sixth was alive in 1899, aged 80; the seventh and eighth died at the age of 69; and the ninth at the age of 81. Various measures have been recommended at different times for attaining old age and Professor SAUNDBY quotes one which was eminently sensible, but when people found out of what it was composed it went out of fashion. Entitled the "Elixir of Villars" it had a great vogue in eighteenth-century Paris until it was found to be nothing but plain spring water. While the patient was undergoing a course of the elixir he had to abstain from all alcoholic drinks. Professor SAUNDBY proceeds to consider normal old age, which he points out is a decline in all vital processes, and then passes to the consideration of the diseases due to or affected by old age. For the younger generation of practitioners the most valuable chapter in the book will possibly be that on Regimen, Dietary and General Treatment, which contains a number of most useful hints.

[1] Iliad, iv., 303–307.

[2] Old Age: its Care and Treatment in Health and Disease. By Robert Saundby, M.D. Edin. London: Edward Arnold. 1913. Pp. 312. Price 7s. 6d. net.

The appendices contain, among other matters, some admirable recipes for dishes which are at once tasty and digestible, and also a table, drawn up by Dr. MARY COGHILL-HAWKES, of physical exercises for the elderly.

We have left to the last the main point of the work, and it is one which is rightly insisted upon with vigour by rofessor SAUNDBY—namely, Moderation. It is easier for the old to be moderate than for the young, for, as PLATO says through the mouth of CEPHALUS in the passage referred to above, "when the passions relax their hold, you have escaped not only from one mad master, but from many," a saying which our own poet WALLER may have had in mind when he wrote his lines on "Old Age," "The seas are quiet when the winds give o'er." Granted a competence so that the struggle for a livelihood is absent, moderation in eating, in drinking, and in exercise, with a due employment of the mind in intellectual occupations, will make his old age a time of happiness to the bearer and of benefit to others; while the passage to the grave may be so easy and calm that to it can be applied the beautiful epigram of DIONYSIUS on his friend ERATOSTHENES:

> Πρηΰτερ ν γῆράς σε καὶ οὐ κατὰ νοῦσον ἀμαυρὴ
> ἔσβεσεν, εὐνήθης δ' ὕπνον ὀφειλόμενον
> Ἄκρα μεριμνήσας Ἐρατόσθενες.....

"A kindlier old age and no enfeebling disease put out thy light, and thou didst lie down to rest in the sleep to which all must come, after thou hadst exercised thyself in great matters, O ERATOSTHENES....."

Annotations.

"Ne quid nimis."

INTERNATIONAL CONGRESS OF MEDICINE—AUGUST 6TH TO 12TH, 1913.

IN the advertisement columns of to-day's issue a list of subscribers to the International Congress of Medicine to be held in August next will be found. A further sum of £2500, which is the minimum required to cover the necessary expenditure, is asked for. This method of appeal has been adopted in order to avoid the very large expenditure entailed by a fresh general issue of circulars to members of the profession. The expenses of this great meeting have in this country to be met entirely by private subscription, since the actual membership fees do not more than suffice to pay for the copy of the Transactions supplied to each member. It will be noted that less than 600 members of the whole profession are at present represented in the list of subscribers, and that upon many of these will fall the further expense of private entertainment of our guests during the course of the meeting. We earnestly support the request for further subscriptions. It is expected that at least 7000 persons will attend the Congress, an estimate which is fully corroborated by the entries which have been received up to the present time, and, further, that the meeting will be fully representative of the profession in the various European countries, America, and our own dominions beyond the seas. It may be pointed out that in the matter of private hospitality the executive will receive support from His Majesty King George, many prominent men such as Lord Strathcona, the Hon. W. F. D. Smith, Mr. Astor, and others, as well as from the medical corporations and some of the City Livery Companies, and that the subscriptions asked for will be mainly devoted to the scientific objects of the meeting. As the Congress is an international engagement, the larger the number of the names which appear upon the list, independently of the amount subscribed, the greater will be the compliment to our colleagues from abroad and from the colonies who are visiting us upon this occasion. Subscriptions may be sent to the treasurer, International Congress of Medicine, 13, Hinde-street, London, W.

APRIL AT HOME AND ABROAD.

OVER the United Kingdom the greater part of April was cool for the time of year, while the sunshine was deficient and the rainfall in excess of the average, both in the amount and the number of days with rain. The frequency of the rain was, contrary to the general rule, rather greater in the south-east of England, not excluding London, than in the south-west. At the Kew Observatory more or less rain fell on as many as 22 days, but until the 29th, when the figure equalled 0·5 in., the measurements were not large, and the total for the month, 2·6 in., was not quite an inch in excess of the normal, in spite of the fact that the number of rain days was nine in excess. Although the temperature was generally low for the time of year during the daytime, the nights, in consequence of the unsettled condition of the weather, were mostly rather mild, and frost was seldom experienced. At Kew the screened thermometer only went below freezing point once—on the 13th, when it touched 29°—and the mean minimum temperature was 40°. The mean maximum, however, 54°, was 2° below the average. Some warm days occurred occasionally during the last fortnight, but earlier the temperature of the afternoon was consistently below the normal. In the extreme south-west of England the days were generally rather cooler than in London and the nights milder. At Torquay the mean maximum was 53° and the mean minimum 44°; and at Newquay the corresponding figures were 51° and 43°. Both resorts had 19 days with more or less rain, the total at Torquay being 4·1 in., and at Newquay 3·9 in. In both cases there was a large excess over the average. The south-west of England was for once more cloudy than the London district. At Kew the sun shone during 120 hours, against 112 hours at Torquay, and 119 hours at Newquay. All places were much less sunny than usual; at Torquay the deficit was more than two hours per day—a most unusual figure. At the Scilly Isles the divergence from the normal was equally striking, the month yielding only 134 hours instead of 212 hours, while at Jersey there was a deficit of no less than three hours per day, the total being only 111 hours instead of 201 hours. At Bath both the days and nights were a little warmer than at Kew, while the sunshine was just equal to the Kew record. Rain fell on 18 days and gave a total of 3 in., 0·9 in. above the average. In the Midlands, as represented by Nottingham, the days and also the nights were less warm than in London, while the amount of rain was almost identical and the sunshine slightly more liberal. On only three nights the screened thermometer descended below 32°, the sharpest frost occurring on the 13th, when the minimum temperature was 27°. As during the greater portion of the winter, the main wind current over these islands was between south and west, with the barometer much more frequently below than above the normal level. The cyclonic disturbances arriving from the Atlantic were not, however, generally of great intensity, and serious gales were seldom experienced on any part of the coast. On the continent there was a much greater range of temperature than in this country, especially in Germany, where there was a premature but short-lived burst of summer. At Berlin, where

the maximum temperature was sometimes as high as 60° early in the month, it was as low as 37° just before the middle, but by the 25th it was up to 70°, and on the last four days rose to 81° or 82°. Sharp frost was experienced about the middle of the month, the lowest temperature recorded being 25°. Considered generally, however, the weather was warmer than in any part of this country, as well as drier. Only six or seven days were rainy, and the aggregate fall no more than 0·7 in. Similar changes of temperature were general in the east and north-east of France. At Paris, where the early part of the month was mild and the middle rather cold, the end was only a little less hot than at Berlin, and as a whole the French capital was warmer, having a mean maximum temperature of 59° and a mean minimum of 42°, both values being a degree higher than those at Berlin. Paris was, however, more rainy than Berlin; more or less rain was experienced on nearly half the days, and the total fall amounted to 2·23 in. As in this country, the month was relatively dull, the total sunshine being no more than 151 hours. On the Riviera there was a marked increase of warmth. At Nice, where the mean maximum temperature was 60°, and the mean minimum 45°, the shaded thermometer rose to 70° or above on three afternoons, but the weather was never so hot as during the latter days of the month at Paris. Rain occurred on nine days, and yielded a total of 3·7 in., but generally the weather was very fine. Much more rain fell at Biarritz, and the weather generally, although nearly as warm as at Nice, was far less fine. Several days were rainy throughout, and the aggregate for the month was as much as eight inches, more than three times the total at Kew. In Italy also the month was more or less wet, especially over the northern half. During the first fortnight, and occasionally later, rain fell in large quantities, that at Rome almost equalling the heavy total at Biarritz. The first fortnight was, too, very cool for the time of year, the temperature barely exceeding that in London. Subsequently, however, there was a very appreciable increase of warmth. At Madeira the temperature was little affected by the northward march of the sun, and the mean maximum was about the same (64°) as during the preceding month, while the mean minimum (49°) showed but slight variation. As a rule the weather was dry and bright, but during the first fortnight rain occurred on eight days.

MANUAL TRAINING.

THE new education, of which so much is heard nowadays, is in reality the old education—i.e., the ideal of Socrates. That is to say, it is drawing out knowledge, and not cramming the pupil with facts as a chicken is crammed with food. And in modern education manual training is gradually becoming more and more common, though not yet as common as it should be. The Penal Reform League has just reprinted a paper upon this subject by Mr. T. C. Horsfall, who is well known as an expert upon education. The paper was originally written for a periodical called *Manual Training*, but the committee of the Penal Reform League thought it good to reprint it because, to use its own words, "there are here indicated some of the measures by which the education of our youth may be made more preventive of crime, that is more effective in fitting them to live worthy lives." Mr. Horsfall starts by laying down the precept that a child should feel love and respect for its teachers, and with this we quite agree. But there is reason for the warning which the Penal Reform League gives that this affection may be abused. Mr. Horsfall maintains that for a teacher to bring out this affection he must have the opportunity of giving his pupils both what they need and what they desire, and the two things for which he pleads are organised games and handicraft. Organised games, such as cricket and football, are of the greatest value, for they teach what is perhaps the crying need of the day—namely, discipline. Manual training, too, excites children's interests in a way which book learning alone never will, for by its means they can apply what they are taught. Even Mr. Squeers, with all his deficiencies as a teacher, had in a way grasped this fact, as our readers will see if they recall to mind the manner in which he connected the spelling of "window" and the cleaning of the same. Mr. Horsfall gives a short account of the results of manual instruction as given in Germany and in our own country at Sompting, and pleads for a general adoption of the new system. He quotes the late Godfrey Leland as saying that he had never known a man who could use his hands skilfully to go quite to the dogs. Opinions may differ as to when "quite to the dogs" begins, but certainly many skilled handicraftsmen have led anything but reputable lives. To mention only two, Benvenuto Cellini could certainly use his hands, but his way of life was far from admirable; while to come down to modern times, Charles Peace was a skilled violinist, could make a violin, was a first-class burglar, and ended his career on the scaffold. For all that, we quite agree that manual training is an asset of great value in the education of youth.

THE SPECTRUM OF THE ALKALOID AS AN AID TO ITS DETECTION AND ESTIMATION.

IN a recent lecture delivered before the Royal Institution Dr. J. J. Dobbie, F.R.S., the principal chemist of the Government laboratories, drew attention to the value of the study of the absorption spectrum of the alkaloids which had not only thrown light upon the structure of these bodies, but had led also to a method for their detection and estimation. The absorption occurs in the ultra-violet end of the spectrum, and means are devised by which a favourable production of this can be obtained. To begin with, the source of light used is obtained by sparking one of the metals such as iron or a combination of metals which give rays rich in ultra-violet. Next, the prisms and lenses of the apparatus are made of quarts, which, unlike glass, is readily permeable by the ultra-violet rays. The lines of selective absorption of the alkaloid dissolved in a diactinic solvent are photographed. It is found that the alkaloids generally have very characteristic spectra by means of which they can be distinguished with certainty from one another, except when they are homologous or otherwise very closely related structurally. The method may therefore be used with considerable advantage in examinations for the presence of alkaloids to confirm the results obtained by the usual chemical tests. Although the chemical tests are as a rule sufficiently distinct, the gravity of the circumstances in which they have frequently to be applied renders it desirable to obtain all the confirmatory evidence possible. Dr. Dobbie says that the minutest quantities of alkaloids can be detected by this means, the method rivalling the colour reactions for the alkaloids in regard to delicacy. Thus, with a quantity of strychnine not exceeding 1/500 of a grain, a clearly defined spectrum of the alkaloid can be obtained. Similarly, the lines are perfectly distinct and peculiar when 1/200 of a grain of morphine and 1/100 of a grain of nicotine respectively are examined in the diactinic cell. As is pointed out, the use of the spectroscope in the detection and estimation of alkaloids in cases of poisoning possesses certain advantages of the highest importance. One is that the material is not

destroyed. The solution which has been employed for the spectroscopic examination can be used afterwards for the chemical examination. Lastly, the spectroscopic method means that a permanent record is obtained which is always available for reference.

THE OLD AGE PENSION AS A SOLE MEANS OF SUBSISTENCE.

AT two inquests recently held by Dr. F. J. Waldo in the City coroner's court attention was again drawn to the undesirable conditions which arise when an old age pension of 5*s*. per week is accepted by persons who have no other source of income or means of subsistence. The inquests referred to were held within a few days of each other upon John Smith, 74 years of age, and Hannah Clay, 76 years of age, his sister and a widow, who had had this advantage, that they had been able to reside together and combine their pensions. They thus endeavoured to live upon 10*s*. per week in one small room, for which they paid 3*s*. per week, 7*s*. a week being spent upon food, clothing, firing, and other necessaries. At one time the woman appears to have had some other means which presumably dwindled as infirmity advanced. When the couple were eventually found the old man had probably been dead for nearly two days and his sister was sitting near his corpse dazed and helpless in a room in which there was no food of any kind. She died later in the workhouse infirmary, and it was suggested by the jury at the conclusion of the inquest upon her that a report of the case should be made to the Chancellor of the Exchequer, with the suggestion that the paying of 5*s*. a week indiscriminately to persons of the required age led to their eking out a miserable existence in a state of semi-starvation, whereas if they entered the workhouse they would be kept in comparative comfort. The point was summed up by a medical witness, Mr. James Kearney, divisional surgeon of police, who at the inquest upon Smith said in answer to the coroner, "It would be all right if they could get a few extra shillings, otherwise the old age pension is an inducement to self-neglect and self-starvation." It implies no lack of appreciation of the benefits conferred upon the aged poor and their relatives by the Old Age Pensions Act if it is submitted that cases of this kind demand attention with a view to reform. In London and in large towns, far more than in country districts, there are many persons, both old and young, who have no friends or relations in touch with them, and in whom no one is interested. It is not in conformity with modern social and sanitary ideals that these, when they become infirm and helpless, should be permitted or encouraged to die from gradual starvation by a statute the aim of which is to relieve poverty and distress.

ANTITUBERCULOSIS WORK AMONGST CHILDREN IN CANADA.

THERE is in Canada a great society of ladies, the Imperial Order of the Daughters of the Empire, organised amid the enthusiasm of the war in South Africa, and first coming before the public by taking charge of the graves of soldiers who in that war gave their lives for the Empire. By its constitution the society exists "to forward every good work for the betterment of our country and our people." It inculcates patriotism, giving prizes to school children for essays on the flag, encourages social service, has done a great deal to forward classes for ambulance work and home nursing, and has lately been turning its attention to the cure and still more recently to the prevention of tuberculosis. An account of the work done by the order was recently given to the Canadian Association for the Prevention of Tuberculosis at Ottawa, the capital, by Mrs. A. E. Gooderham, the president, and from that address we learn that a well-planned preventive scheme has been initiated in the large city of Toronto. Here they began by providing two children's wards in 1905 in a local sanatorium. Those children on discharge were watched over by social service workers, but the need for preventive work soon became evident, and now there is a clinic at the Sick Children's Hospital to which some patients come voluntarily, while others are sent by the medical school inspectors. A pavilion by Lake Ontario has been given to the Heather Club Chapter of the Daughters of the Empire, who are social service workers. They took charge of a hundred children last year, and were careful to see that these children after discharge did not lack necessary extra food and clothing. But a "preventorium" is now in preparation and on the point of being opened—a large two-storey house with deep verandahs, to take 60 children, 30 boys and 30 girls, attacked by, or suspected to be suffering from, pulmonary tuberculosis, but not so seriously ill as to be hospital cases. In the extensive gardens and playgrounds of the institution, with its carefully planned hygienic arrangements, it is hoped the children will escape the threatened danger, and at any rate they will be taught how to avoid spreading the disease and will learn something useful of hygiene as well. This care for the children is a work specially appropriate to a society of ladies, and reports from Eastern Canada suggest that they have taken it in hand with ability and success.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual report of the London and Counties Medical Protection Society for the year 1912 demonstrates once more the benefits which members of medical defence associations derive in return for the modest rates of subscription charged. There must be few men in active practice who have not realised the advantages of this most necessary type of insurance against worry and loss. But since every year a large number of recruits are drafted into our ranks it is never supererogatory to lay renewed emphasis thereon. The report quotes scores of cases which illustrate the value of mutual protection; familiar as such cases are to those who have studied previous reports, they are well worth the close attention of all those who are about to begin any form of active practice in the medical and dental professions. Apart from this, the report is chiefly of interest from the financial aspect. From the beginning of 1911, it will be remembered, this society raised its annual subscription from 10*s*. to £1, guaranteeing in return to pay the costs and damages up to £2000 in which any member might be cast in any action undertaken by the society on his behalf, as well as the previous liability to defend his professional interests free of charge whenever and however they might be threatened. So far the extra premium of 10*s*. has proved much more than sufficient to cover the extra liabilities incurred, and the special fund established for the purpose of meeting all claims of this nature has already a surplus of £3520. The general reserve fund is kept separate in the accounts, and now amounts to £4544, to which must be added £1307 standing to the credit of the income and expenditure account. It will be seen that the society's position is exceedingly strong; and, indeed, the only disquieting feature in the accounts is the heavy depreciation which has had to be written off the value of the investments. These are, with one exception, of the gilt-edged variety, and some part of the depreciation will doubtless be recovered in time.

GANGRENE OF ALL FOUR EXTREMITIES.

IN an article published in THE LANCET of Nov. 30th, 1912, on "Beleaguered Constantinople," which detailed some of Mr. Samuel Osborn's experiences with the British Red Cross contingent at Constantinople, reference was made to an interesting case of symmetrical gangrene of both hands and both feet in a Turkish soldier, under the care of Mr. John F. McClean, at the British Seamen's Hospital. We have now received through Mr. Osborn a photograph of this patient taken on leaving hospital. Mr. McClean suggests that the gangrene was most probably due to the action of some high

explosive, such as melinite. After the operation Mr. McClean and his assistants spent much time and trouble in educating the patient to do everything for himself, and in the end he repaid them for their care, for he left them, to use Mr. McClean's own words, "walking out of the gate on his stumps, able to feed himself, and attend to his bodily functions all on his own." That this is not an exaggeration can well be understood from inspection of the snapshot which we reproduce.

INTESTINAL PERFORATION IN PARATYPHOID FEVER.

THE bacteriological investigation of cases of typhoid fever led, as is well known, to the discovery that in a certain number the causal organism is not the typhoid bacillus but a microbe of the same group which has been termed the "paratyphoid bacillus." The illness produced by this bacillus—paratyphoid fever—is clinically indistinguishable from typhoid fever, and usually resembles a benign form of the latter. Out of 162 recorded cases only 6 have been fatal. Intestinal lesions like those of typhoid fever are rare, and it has been asserted that perforation never occurs. In the *Progrès Médical* of March 1st M. Grenier, an army surgeon, has reported a case which shows that this generalisation is premature. A soldier in the foreign legion, aged 28 years, had good health but was slightly addicted to alcohol. He had never had typhoid fever. On July 25th, 1912, he was taken ill with foul tongue, a little diarrhœa, headache, and slight fever. On August 5th he was examined by M. Grenier. Forty hours previously he was seized with acute pain in the right iliac fossa. Examination showed a dry tongue, rose spots on the abdomen, abdominal rigidity with pain which was acute on pressure, especially on the right side. There was bilious vomiting, the face was pinched, the pulse was 120, and the temperature 103·3° F. The diagnosis of peritonitis consecutive to typhoid perforation was obvious. In spite of the interval which had elapsed laparotomy was performed. Sero-purulent fluid escaped from the general peritoneal cavity and pus from the pelvic cavity. On a coil of ileum near the cæcum a lenticular perforation was found over an inflamed Peyer's patch. There were no adhesions. The perforation was sutured, and three large drainage-tubes were placed in the pelvis. The abdominal wound was closed, and saline solution was administered hypodermically and by the rectum according to Murphy's method. Death took place on the following day. At the necropsy the intestinal coils were found adherent to one another. The lower part of the ileum was swollen and showed numerous inflamed and hæmorrhagic Peyer's patches. The mesenteric glands were enlarged. The spleen was large and diffluent. A blood culture made during life showed an extremely motile organism with all the characters of paratyphoid bacillus of the B type.

THE DRUIDIC SERPENT'S EGG.

THE sea-urchin, from birth to maturity, was one of the subjects recently demonstrated before the Section of Medicine of the Royal Society of Medicine by Dr. Gustave Monod, of Vichy. The films moved at about 112 times the speed at which nature moves, and thus we were afforded the strange sight of the process of cell-fissure taking place with something like the rapidity of an ordinary human action. It was, to quote the lecturer's phrase, as though we witnessed the very inception of life. The sea-urchin for long maintained a central position in the materia medica of the Gallic world. For in its fossil state it was the serpent's egg of the druidical pharmacopœia, a potent talisman and cure all, which the subtle Druids picked up with care on the northern shores of France and sold, often for its weight in gold, to their credulous Roman conquerors. It was believed that a genuine snake's egg or "anguineum," even when encased in gold, would float against the current of a stream. The elder Pliny describes one which he had examined. "It is about the size of a moderately large round apple, and has a cartilaginous rind studded with cavities like those on the arms of a polypus." Here perhaps we have a reference to the shell of the sea-urchin rather than to its fossil. Gigantic sea-urchin shells are of course familiar to the Celts in Iona and elsewhere. The serpent's egg, or *ovum anguinum*, is described by Nehemiah Grew in his "Catalogue and Description of the Natural and Artificial Rarities belonging to the Royal Society" (1681). It is so called, he avers, from its "roundness, and form of snakes tailes pointing upward, and towards the middle of the stone." He believes it to be an "*Echinites*," though Agricola makes it a sort of Brontias. All sorts of fossils figure in the ancient materia medica. Thus the "Judaic Stones" resembled almonds, acorns, olive-stones, and so forth. They were found in the clefts of rocks in Judæa, and "are dissolved with spirit of nitre, not without effervescence, especially when reduced to powder. And may therefore be justly esteemed diuretick, and so sometimes bring away or (as people think) break the stone; for which, by Pliny, 'tis call'd Tecolithos." These fossils were usually selected by searchers on signaturist principles and because they were pretty or singular. The ancient Celts gave a curious account of the origin of the serpent's egg. It was believed to be produced "from the saliva and frothy sweat of a number of serpents writhing in an entangled mass, and to be tossed up into the air as soon

as formed."' A horseman, a Druid, caught it in a fold of his cloak, and rode off at full speed with the serpents after him. These were only stopped in their pursuit by a running stream. The belief in such mystic origins for concretions or fossils lingered in the seventeenth century, for we find this Nehemiah Grew, Secretary of the early Royal Society, quoting a friend in this connexion when endeavouring to account for their formation underground. "Though I have not seen it myself, yet I have been told by one that doth not use to phancy things, that the volatile salt of vipers, will figure itself into the semblance of little vipers."

PERIODIC PARALYSIS.

IN the current issue of *Brain* is a paper by Dr. H. Willoughby Gardner, physician to the Salop Infirmary, describing a case of that rare and interesting disease, periodic paralysis. Apart from its intrinsic interest the case is valuable as showing how successful the result of suitable treatment may be. The patient was a big, hulking, country youth aged 17, who came under observation in the first instance in the spring of 1907 with a history of having been subject for the previous two years to attacks of complete loss of power in the arms and legs. Dr. Gardner was at first almost inclined to disbelieve the story or to consider the condition one of pure hysteria, for he could find no sign whatever of any disease. Nevertheless the attacks recurred, and he had the opportunity of observing the patient in one of these in June, 1907, which was as follows: The patient awoke with a headache at 4 o'clock on the morning of June 8th, and found he was quite unable to move his arms, legs, or head. When examined later in the day he was noted to be unable to move his head, except very slightly from side to side, but the facial muscles were uninvolved. He was just able to move his arms; the legs were completely immobile, except for a feeble movement of the toes. There was no impairment of any form of sensibility. The deep reflexes in the arms and legs were completely abolished. The muscles of the limbs failed to react either to faradic or galvanic stimuli. The heart was slightly dilated, and there was a soft systolic murmur most evident in the aortic and pulmonary areas. The pulse-rate was 42. As the patient was unable to pass his urine it was withdrawn by catheter. He was drowsy and complained of pains in the limbs. By 8 o'clock on the following morning the attack had already begun to pass off; by noon he had regained motor power in the arms and legs; the reflexes and electrical reactions were brisk; and the next morning he walked five miles home, apparently in perfect health. Attacks of this curiously interesting type recurred with increasing severity and frequency until the effects of treatment made themselves apparent, and at present the patient is in full work as a collier, and is the father of a healthy child aged 2 years. Dr. Gardner's comments on the case are instructive and illuminating. It appears that in this instance the attacks of paralysis seem to have replaced previous attacks of "bilious headache." Latterly they became associated with very violent attacks of vomiting. Either the attacks themselves or the warnings, Dr. Gardner notes, nearly always began on a Sunday. They certainly have been associated on not a few occasions with the patient's playing a football match on the Saturday previous. They always developed during sleep, the patient waking up to find himself paralysed. The case is unusual, however, in that no hereditary element could be traced, although periodic paralysis is one of the few true hereditary diseases. Holtzapple has described a remarkable series of cases occurring over four generations. He found that 14 members of the family had attacks of paralysis only, 5 had both paralysis and sick headache, while 13 others suffered only from sick headache. Dr. Gardner quotes various other cases from the literature, although there are several more recent instances recorded in continental literature than those which he cites. He believes that the essential condition underlying the disease is a "congenital defect of metabolism," and compares it with the cyclical vomiting of children associated with acetonæmia, and with "uric acid storms." He admits, however, that family periodic paralysis presents close analogies to ophthalmoplegic migraine, and this is unquestionably true. The view which obtains most support to-day in regard to the latter condition is that it is of vasomotor origin, and there is some reason to suppose that some transient vasomotor disturbance is behind the phenomena of periodic paralysis. At the same time it offers certain suggestive analogies to epilepsy, and it has been maintained that the disease is of the nature of epilepsy by more than one of the recent observers who have recorded cases. Admitting that a transient ischæmia of the spinal cord might explain some of the symptoms, it is difficult to understand the complete failure of electrical contractility, which is so characteristic of the condition. Whether the exciting cause is to be sought in auto-intoxication is a question that cannot yet be settled. Dr. Gardner argues for this view by instancing the sudden onset and the rapid recovery, the invariable occurrence of the attacks after sleep, the fact that occasionally the condition could be walked off, and the association of headache, drowsiness, thirst, aching, sweating, &c., in the actual seizures. It is certainly remarkable that in the more recent of the patient's attacks violent vomiting caused the symptoms to disappear rapidly, or at least seemed to do so. The line of treatment prosecuted by Dr. Gardner consisted in administering large quantities of water by the mouth, and in prescribing saline aperients, calomel, diuretics, and a combination of caffeine citrate, potassium bromide, and dilute hydrobromic acid whenever the warning symptoms of the attack made their appearance. This latter prescription appears to have been followed by excellent results.

EXHUMATION ORDERS.

ON March 1st, 1912, Colonel Charles Meeking died at his residence in London, having been attended at the time of his death by Sir Anthony Bowlby and Dr. Edmund Cautley, the latter of whom certified that death was due to cardiac failure. Several months later, apparently at the instance of the executors of the deceased's will, an order for the exhumation of the body was granted by the Home Office; the exhumation took place and excited considerable comment owing to the publicity accorded in the press to the fact that it had taken place and to general reticence as to its cause. The body was then submitted for examination to Dr. B. H. Spilsbury and Dr. W. H. Willcox, whose report has now been made public in a letter addressed to the daily newspapers by the solicitors acting for the widow, that lady having been asked to agree to the exhumation and having given ready consent thereto. The result of the examination thus made has confirmed the certificate upon which burial took place, for it states that death was due to acute dilatation of the heart, mentioning the absence of chemical poisoning and of any other disease, and suggesting the possibility that an attack of intestinal colic caused the condition of the heart referred to. A further letter published simultaneously with that of Messrs. Lewis and Lewis was from Dr. Cautley, who protested against the action of the Home Office in ordering the exhumation without any previous reference to the medical attendants of the deceased. With that protest the medical profession will agree. The obvious intention of an exhumation

in such circumstances is to ascertain whether there has been foul play, and it is not a measure to be undertaken lightly. Where a medical practitioner has attended the deceased it implies that if there has been poisoning or any other wrongful act or omission conducing to the death he has overlooked it, and it further suggests that someone may have caused the death by a felonious act. So far as the medical attendant is concerned it is an act of discourtesy to him to ignore him in granting the exhumation, and, more than this, an exhumation such as that referred to inflicts pain upon relatives and causes the circulation of rumours of a very painful character. Reference need hardly be made to the names of the two medical attendants of the late Colonel Mecking in order to point out that in his case the possibility of error was an extremely remote one. In general, however, it may be said that it should be possible for the Home Office, by inquiry addressed to the medical attendant by a person qualified to make it, to satisfy itself as to the possibility or likelihood of a mistake having been made, or if there is any other reason for regarding the medical certificate of the cause of death with suspicion. If after such an inquiry there remained an element of doubt or any probability or even possibility that the suspicions of those asking for post-mortem examination of the remains had any substantial basis, no question of the feelings of the medical attendant or of surviving relatives should, of course, intervene to prevent full investigation. The interests of public justice on such occasions must necessarily override other considerations. And Dr. Cautley, in the protest to which we have referred, does not demand otherwise.

THE ETIOLOGY AND TREATMENT OF RHEUMATOID ARTHRITIS.

THE causation of rheumatoid arthritis has been the subject of much speculation and research. Its frequent association with chronic infections and its analogies with other acute and chronic processes in joints of proved infective origin have given considerable support to the view that at any rate some of the conditions comprised under the somewhat comprehensive term of rheumatoid arthritis are also due to chronic microbic infections. We publish in this week's issue of THE LANCET two interesting and suggestive contributions upon this subject. The first of these, by Dr. H. Warren Crowe, of Yelverton, is more particularly concerned with the etiology of the disease. The second, by Dr. A. Bertram Soltau, of Plymouth, deals especially with the results of treatment by certain vaccines, and the general results obtained by the two observers are substantially in agreement. Dr. Crowe states that it has been his practice for some years to examine the urine bacteriologically in cases of arthritis, neuritis, and muscular rheumatism, and he has found that when a local bacterial nidus exists the same organism can usually be recovered from the urine. He has found a group of organisms in the urine which he has distinguished as staphyloidcocci, and he has subdivided these into six distinctly different organisms, to one of which he has applied the name of staphyloidcoccus A. He has found the organism to occur with remarkable frequency in the urine of patients suffering from rheumatoid arthritis. He believes it to be the commonest so-called staphylococcus found in urine, and states that it closely resembles that group of germs to which the generic name of micrococcus epidermidis albus is applied. Dr. Soltau has used a vaccine made from this staphyloidcoccus A of Dr. Crowe in a considerable number of cases, and describes his results, which he regards as encouraging. He has found that some of his cases showed the presence of staphyloidcoccus A alone, while in others the infection was mixed; such organism, as streptococci and bacillus coli communis being present with the staphyloidcoccus A. In the latter group of cases he has generally given a vaccine from the secondary organisms first, and later given the staphyloidcoccus A vaccine. In regard to the dosage of the latter, it is necessary to start with very small doses, such as half a million, since marked reactions occur even with these small doses. Both observers are careful to avoid making exaggerated claims as to the significance of their observations. They do not maintain that the sole pathogenic cause of rheumatoid arthritis is the organism which they have worked with, but point out that its frequent presence in the urine and the good results of its careful use as a vaccine are suggestive, and should encourage further interest in the subject. This disease in some of its forms is so crippling and is productive of so much pain and disability, that we must welcome any new work which offers a hope of real curative rather than palliative treatment, and we shall await further experience on this method of treatment with interest.

THE DANGERS OF THE OPERATION FOR ADENOIDS.

THERE is an impression among the laity, and even in the profession, that the operation for adenoids is devoid of danger. This is no doubt due to the few cases of complications following this extremely common operation which have been described. For this there are three reasons. First, few surgeons enjoy publishing their accidents. Second, the patient is often not under the observation of the surgeon after the operation. Third, the operation is frequently performed by the general practitioner, who is too busy to publish his cases. In the *Johns Hopkins Hospital Bulletin* for April Dr. W. E. Grove has reported two cases of complications following the operation for adenoids and reviewed the literature of the subject, which is almost entirely German. The most frequent and dangerous of these complications may be divided into two groups—hæmorrhage and infections. Post-operative hæmorrhage may be very severe. In 1907 Barrell and Orr reported seven fatal cases. Post-operative inflammation may be expected when it is remembered that many microbes are found on the surface of adenoids. Indeed, the fever which usually follows the operation is an indication of an infection which the organism usually overcomes. Six cases of septicæmia following the operation have been recorded. Coley observed one case of endocarditis and found two other cases in the literature. Practically all the acute infectious diseases of childhood have been observed as post-operative sequelæ. The cases of scarlet fever and diphtheria may be explained in two ways. Either the operation was performed during the incubation period or the patients were carriers of the disease, the microbe being present in the throat. Acute local post-operative infections are frequent. Trofinow saw five cases of angina follicularis after 508 operations. Gerber observed a peritonsillar abscess a short time after removal of adenoids in an adult. Grönbeck described four cases of extensive post-operative adenitis. Nine cases of torticollis following the operation have been described. Erysipelas has also been observed. Pulmonary complications, such as pneumonia and abscess of the lung, have been described: they are evidently due to aspiration of blood or lymphoid tissue during the operation. Fatal meningitis has also been reported. Infection of the ear through the Eustachian tube are among the most frequent, if, indeed, they are not the most frequent, complications of the operation. Infections of the nasal sinuses appear to be much less frequent and have received little attention in literature. Henke described the case of a girl, aged 13 years, in whom severe infection of the frontal sinus with œdema of the eyelids and neighbouring parts developed

two weeks after operation. Dr. Grove has observed the two following cases. From a girl, aged 13 years, he removed the tonsils and adenoids on Oct. 4th, 1910. On the following day she appeared to be doing well and was allowed to go home. She was brought back on the 19th in consequence of fever and pain in the ear. The mastoid was sensitive, the left eyelids were swollen, and there was some ptosis. Severe frontal headache was felt. Pus was found in the left side of the nose, and skiagraphy showed a shadow over the left frontal sinus. The temperature was 102° F. On the 21st the sinus was opened and found to contain pus and polypoid granulations. The anterior bony wall was removed and recovery followed. From a girl, aged 20 years, the tonsils and adenoids were removed on Nov. 21st, 1911. She did well until Dec. 7th, when she noticed a discharge of pus from the left side of the nose. Pus was seen high up in the anterior portion of the middle meatus. On the 18th skiagraphy showed a shadow in the left ethmoid region. Suppuration of the left anterior ethmoid cells was diagnosed. The inferior turbinate and the anterior end of the middle turbinate were hyperæmic and swollen. On the 20th the anterior end of the middle turbinate was removed. Recovery ensued. Dr. Grove does not wish to deprecate the operation for adenoids, but to protest against its careless performance. He concludes that patients should be kept under observation after operation longer than is customary—for two or three weeks.

A LETTER, signed by 151 representatives of the medical profession and teachers of medical sciences, has been sent to Mr. W. W. Astor, congratulating him on the result of the recent libel action against the *Pall Mall Gazette*, and thanking him for the public service which he has rendered to our profession in this matter.

THE adjourned discussion on Dr. W. A. Brend's paper, read before the Medico-Legal Society, which we print this week, will be held on Tuesday next, May 20th, at the rooms of the Medical Society of London, Chandos-street, Cavendish-square, W. Medical men are invited to attend.

WE understand that Mr. H. J. Waring will be a candidate for the vacancy on the Council of the Royal College of Surgeons of England caused by the resignation of Mr. W. Bruce Clarke, announced in another column.

THE Imperial Medical Society of Vienna has elected Professor Harnack, of Halle, and Sir Lauder Brunton, of London, as honorary members.

UNIVERSITY OF OXFORD.—The following gentlemen have been appointed by the General Medical Electorate as members of the new Board of Faculty of Medicine: Dr. A. E. Garrod, F.R.S., Dr. Cecil Wall, and Mr. A. P. Dodds-Parker. New regulations have been approved by the Board of Faculty of Medicine for the first B.M. examination in organic chemistry, and will be published in the forthcoming issue of the Examination Statutes.

THE AWARD OF THE RIBERI PRIZE.—At a meeting of the Royal Academy of Medicine at Turin on May 9th the adjudicators of the Riberi Prize of 20,000 francs (£800) proceeded to consider the claims of the candidates, 12 in number, and, *nemine contradicente*, conferred it on Dr. Luigi Pagliani, professor of hygiene in the University and Dean of the Faculty of Medicine, for his "Trattato di Igiene" (Monograph on Public Health). The award has been welcomed by the profession throughout Italy as a fitting acknowledgment of the services, academic and municipal, by which Turin maintains her honourable record as the healthiest of Italy's centres of population, her mortality for the last statistical year (according to the report of the Board of Hygiene) having been brought down to 12·5 per 1000.

THE FUTILITY OF THE CORONER'S INQUEST.[1]

BY WILLIAM A. BREND, M.A. CAMB., M.B., B.SC. LOND.,
OF THE INNER TEMPLE, BARRISTER-AT-LAW; LECTURER ON FORENSIC MEDICINE, CHARING CROSS HOSPITAL.

THE existing state of the law relating to coroners and inquests has long been a source of dissatisfaction to the medical profession. In 1908 the Home Office appointed a Departmental Committee which inquired into certain aspects of the matter and issued a report in 1909. But the committee appear to have interpreted their reference in a rather limited spirit, and the changes they recommend are small and leave the present system essentially unaltered. The report appears to me to express chiefly the coroner's point of view, and it is because I feel that there are certain broad aspects of the matter which have not been considered, aspects involving the whole question of the functions of the coroner from the point of view of the community, that I venture to bring this paper before you. As to the social importance of the subject there can be no doubt. In 1910, the last year for which complete figures are available, there were in England and Wales 35,417 inquests and 19,509 preliminary inquiries not followed by inquests out of a total of 483,347 deaths. Thus, over 11 per cent. of all deaths came under the purview of coroners.

One of the first things that arrest attention when investigating these matters is the great diversity of principle among coroners in the selection of cases upon which to hold inquests and of procedure in the conduct of those inquests. Some consider that their duty begins and ends in ascertaining whether or not crime has been committed. Others for scientific or statistical purposes inquire into deaths in which the pathological cause is unknown even if there be no reason to suspect violence. Some coroners consider that they are bound to hold inquests upon all deaths under anæsthetics, others only if there are allegations of negligence. Some go fully into accident cases with the avowed object of settling claims for compensation, others consider that this is no part of their duty. One coroner will scarcely hold an inquest without calling medical evidence, another only requires such testimony occasionally; some order post-mortem examinations almost as a matter of routine, others only exceptionally even where poison has been taken, as in the recent veronal case at Hove.

It appears to me that this want of uniformity arises from the absence of any clear indication as to the fundamental purpose for which a coroner holds an inquest, and the explanation is probably to be found in the history of the office. The coroner who dates from the twelfth century was originally a revenue officer of the Crown. He seized treasure trove in the name of the King—a duty which still remains—and he inquired into deaths for the purpose of ascertaining whether or not there was property for him to confiscate, which was the case if the deceased was an outlaw or felon, including of course a suicide. He also had to take possession of the deodand, that is the animal or inanimate object which had led to a death. Thus if an ox killed a man the ox or its monetary value was forfeited to the King.

It is clear, therefore, that the coroner had originally a specific object in view in pursuing his inquiries. But one by one these duties have disappeared, and nothing has been definitely substituted for them. The ancient machinery devised for a specific purpose remains practically intact, but it is literally impossible to answer the question, Why does a coroner inquire into a death? In the absence of any guiding principle each coroner has been a law unto himself, and the result is the remarkable divergence of principle I have indicated. Of course, it will immediately be said that the object of the inquest is to find out the cause of death. But this question might be answered in a number of different ways, according to the fundamental purpose for which it is asked, any of which would be equally true and complete for that particular purpose. A man, for example, has fallen from a scaffold. To the pathologist the cause of death is injury to the brain, to the insurance company "accident," to the person responsible for the building of the scaffold

[1] A paper read before the Medico-Legal Society on April 22nd, 1913.

certain defects in the material or construction, to the police possibly manslaughter from the neglect of another to provide certain safeguards. Until the fundamental purpose of the inquiry is determined it is waste of time to consider what alterations should be made in the coroner's law; for it is clear that the qualifications in the coroner and the procedure adapted to one purpose are not those suited to another. Speaking broadly, we have to choose between either a legal or a scientific inquiry.

Apart from the actual statements of coroners, evidence of the diversity of principle and practice is furnished by the statistics relating to inquests. For instance, some coroners regard a case of Bright's disease or cirrhosis of the liver as "natural death," others enter it under "excessive drinking." The result is that one town will show an apparent mortality from the latter cause enormously greater than that in another town of the same size and character. Some coroners accept any evidence as sufficient to establish insanity in cases of suicide, others require evidence of its existence in the ordinary meaning of the word. In Manchester and Newcastle, for example, out of 84 suicides in 1910, there were 41 verdicts of *felo-de-se*, while in London out of 540 suicides there were only seven such verdicts. In one district in London post-mortem examinations were made in 96 per cent. of the inquests held, in another in only 29 per cent. Perhaps the most striking feature is the difference in the proportion of inquests held in town and country. The Registrar-General's returns show that out of 132,505 deaths in 24 large towns, inquests were held in 9·9 per cent., the percentage of violent deaths being 4·1. In 22 rural and scattered areas, out of 77,890 deaths the percentage of inquests was 5·5, the percentage of violent deaths only dropping to 3·9. Further analysis shows that the difference lies almost entirely in the number of natural deaths investigated, the percentage of such verdicts in inquests held being about 50 in towns and 25 in the country. In other words, the coroners in country districts tend to hold inquests only when there is some suspicion of violence. In towns they investigate a larger number of deaths in which there is no suspicion but the pathological cause is doubtful. One might have expected that inquests would have been fewer in towns, since the opportunities of making complete preliminary inquiries are much greater than in the country; but the reverse is the case.

It appears to me that there is only one adequate explanation of this difference—namely, that the factor of distance influences the coroner. In the country most of the coroners are part-time officers, frequently solicitors or medical men in busy practice. The salary attaching to the office is usually not large, and to travel a long distance with the added trouble of summoning a jury and arranging for the attendance of witnesses may mean a serious interruption of work. Under such circumstances coroners are apt not to hold inquests except in cases of urgent necessity. If this explanation is correct I submit that it indicates a serious state of affairs. It means either that a large number of unnecessary inquests are being held in towns or that inquests are not held in the country where they should be, or both. In the first alternative persons are being needlessly put through a painful ordeal, jurymen and witnesses are called upon to waste their time, and the local authority is being caused unnecessary expense. If the second be the case, then many deaths in the country are not being properly investigated. In either case the position is extremely unsatisfactory and indicates the necessity of laying down some general principles for coroners to follow. As bearing upon the holding of unnecessary inquests in towns, let me quote the following from the evidence of Mr. Ollis, chief officer of the Public Control Department of the London County Council, before the Departmental Committee:—

> An officer of the Council was instructed to watch proceedings at inquests as a member of the public. He attended 23 different courts, and at those 23 different courts in all 97 inquests were held. In one court as many as 12 inquests were held on the same day, and the whole time of the court occupied on those inquests amounted to 2 hours and 10 minutes, or an average of 10½ minutes per inquest. That, I think, was the worst case. But in a number of other cases inquests were grouped, and the time spent upon an inquest did not indicate that any public good was being served by the inquest being held.

Sources of Information open to Coroners.

For the proper investigation of unnatural deaths it is obvious that the coroners should obtain early and complete information of all such cases, but it is more than doubtful whether the present system or systems provide this.

The police constitute the principal source from which coroners receive information, but it is a significant fact that although many coroners consider that their chief function is to detect crime, the machinery established by the legislature for this purpose—viz., the police and the various criminal courts—is entirely separate from, and independent of, the coroner. In a case where murder or manslaughter is suspected the investigation from first to last is in the hands of the police, and they act on their own judgment in making arrests and charging persons before a magistrate. They are our real safeguard, and any change in the coroner's law would leave them unaffected.

The registrar of deaths exercises the function of reading certificates of death and forwarding such of them as he considers unsatisfactory to the coroner. I submit that the duty of revising medical certificates cannot be satisfactorily discharged by anyone other than a medical man, and the practice was condemned by the Committee on Death Certification as long ago as 1893. Evidence was given before the Coroners Committee that some of the registrars are ignorant of their duties and do not report cases they ought to do.

Interesting confirmation of this was given by Dr. H. T. Herring, medical referee to the London Cremation Society. When a body is to be cremated two medical certificates are required, and these are scrutinised by the medical referee. Between the years 1902 and 1909 11 deaths were referred by Dr. Herring to coroners, although the certificates were apparently quite in order and would have been sufficient for burial. The coroners considered it necessary to hold inquests in seven of these cases, and in some of them death was found not to have been due to natural causes. Dr. Herring estimated that there are in London alone at least 210 persons buried every year on the registrar's certificate upon whom inquests ought to have been held.

But a still greater danger arises from the fact that the registrar is empowered to dispense with a medical certificate altogether and issue a certificate of burial upon receipt of what is termed "information," which may be derived from any unqualified bonesetter or herbalist or even from persons who make no pretence to medical knowledge whatever. This is a very grave responsibility to place on a person without knowledge of medicine. Let me call your attention to the facts that, apart from 814 deaths the causes of which were unknown or ill-defined, there were, according to the Registrar-General's returns in 1910, in England and Wales, 199 deaths from accident or negligence which were certified by medical practitioners without any inquest being held, and 690 deaths which were neither certified by doctors nor reported to coroners. These facts show that even the existing law is not carried out, and are alone sufficient to condemn the system.

The coroner's officer.—This functionary, though unknown to statute, exercises duties of a most inquisitorial character, and it is largely upon his inquiries that a coroner decides whether or not to hold an inquest. Where he is a police constable or sergeant he is probably efficient, but many are private persons and may be quite incompetent. Coroners' officers are usually paid by fee, so that it is to their interest to have as many inquests held as possible. An additional objection is that their inquiries in cases of crime may, as Inspector Shorthouse pointed out, frustrate the police investigations.

Medical practitioners.—In consequence of the pain and publicity attaching to inquests the public are naturally very reluctant to face these inquiries, and in doubtful cases strong pressure is always brought to bear upon practitioners to avoid an inquest if possible. The result is that many cases in which the pathological cause of death is unknown are not reported if they appear to be free from suspicion. But it is impossible to say that any death is free from suspicion as long as the pathological cause is undetermined. With the simplified and semi-private procedure I shall suggest presently, more of these cases would be reported and crime might be detected.

Let me give some actual instances. The death of Mary Chapman, the first victim of the murderer Chapman or Klowsowski, was certified as due to phthisis, but when the body was exhumed no trace of disease was found in the lungs. If an investigation had been made in this case the lives of the two later victims would have been saved. About

the second, Bessie Taylor, I have been able to find greater details. In this case the doctors were completely puzzled by the symptoms exhibited during life. She was first seen on Jan. 1st, and was then suffering from vomiting, diarrhœa, and pain in the stomach. The diagnosis, however, was obscure, and between Jan. 1st and Feb. 13th no less than three consultations with different medical men were held. One of these, a specialist in diseases of women, suggested that she was suffering from uterine disease, another thought the symptoms were due to a severe form of hysteria, and the third diagnosed cancer of the stomach or intestines. She died on Feb. 13th, and a certificate was given stating the cause of death to be intestinal obstruction, vomiting, and exhaustion. With a clinical history of this kind submitted to him any medical investigator would have seen the necessity for an examination, and had this been done Maud Marsh, the third wife, would not have followed her predecessors to the grave.

One might bring forward other and more recent cases where a body has been buried on a medical certificate, and fresh facts coming to light have led to an exhumation and the discovery of crime. Who knows how many have never been detected?

Let us now consider the value of the inquest verdict in various classes of deaths.

Murder and Manslaughter.

It has already been pointed out that the investigation of these crimes is really in the hands of the police But the independence of the criminal authorities extends further. The magistrate has no official cognizance of the inquest, and he may commit a person for trial even though a verdict of natural or accidental death has been found at the inquest. Thus it comes about that in cases of murder or manslaughter there are two preliminary inquiries, often proceeding at the same time and quite independent of each other, though both are based upon the same information collected by the same authority, the police. The same witnesses are called and the same evidence is given at length in each court, so that it is almost more accurate to say that there is one preliminary inquiry held twice over. When the case reaches the criminal court the parties conducting the prosecution are almost invariably guided by the magistrate's decision. If a charge has been dismissed by the magistrate, but the accused person has been committed on the coroner's warrant, it is the practice with few exceptions not to offer evidence against him. When one considers that there is a hearing before the grand jury and the case may go finally to the Court of Criminal Appeal, thus making in all five tribunals concerned, it is surely unnecessary that the two preliminary inquiries should be held. That the two investigations are not really required for examining the complicity of a particular person is shown by the fact that there are circumstances in which only one takes place. A person is found dead and the coroner's jury return an open verdict. If subsequently an arrest is made the inquest is not reopened, and the facts as regards the prisoner are investigated solely by the magistrate. The Gorse Hall murder furnished a case in point. Again, it is doubtful whether the proceedings before the coroner even further the interests of justice. The coroner is not bound by, and does not observe, the law of evidence, and he may elicit certain facts which ought not to be before the jury at the trial. Yet the jury may have already learnt them through the medium of the newspapers.

Accidental Deaths.

Here, again, we have an instance of the duplicating of inquiries owing to the absence of legal weight or scientific value attaching to the inquest verdict.

Since the passing of the Workmen's Compensation Act the question of compensation arises in a large proportion of accidental deaths, but many people are unaware that a verdict in the coroner's court carries no legal weight and does not settle these claims. Insurance companies are in no way bound to observe it, and, if a case is disputed, the whole thing must be inquired into afresh in the county court or higher courts, where probably the inquest will never even be mentioned. It is quite possible that a death may be decided to be accidental in the coroner's court, but may be held by the law courts not to be an accident under the Workmen's Compensation Act. On the other hand, a case in which natural death has been found may yet be the subject of a successful claim for damages or compensation as an accident. Nor is the objection limited to mere absence of meaning of the verdict. In some cases it is productive of actual harm. Juries do not, as a rule, know that their verdicts have no weight in compensation cases, and they are frequently not so informed by the coroner. Accordingly they sometimes return a verdict of accidental death in the face of clear evidence to the contrary, with the benevolent object of assisting the relatives in their claim. This leads to useless litigation and disappointment. To take a recent instance, it was alleged that a man died as the result of an injury to his hand. The medical evidence was conclusive that death was due to perforation of a gastric ulcer, but the jury found a verdict of accidental death, the coroner indicating that he did not agree with them. The widow will probably now spend time and money in consulting lawyers, and will perhaps take her case to court only to lose it and retain a sense of injustice for the rest of her life.

In the case of mining disasters, railway accidents, &c., the legislature, apparently distrustful of the inquest, has provided that the Board of Trade or Home Office shall hold an inquiry into the cause. The inquest usually does little more than determine that death was due to an accident. The Board of Trade inquiry is conducted by a person with special knowledge of the subject, scientific experts are called if necessary, and, finally, a report is issued indicating as far as can be ascertained the actual defect in the machinery or other primary cause of the disaster, and containing recommendations for the avoidance of similar accidents in future. As long ago as 1890 it was stated in the Report of the Mines Commission that "the mode in which coroners' inquests are conducted seems to us very unsatisfactory inasmuch as the inquiry is limited to determine whether the death was accidental or not without any reference to the cause of the accident from which it resulted." As an illustration of the absurdities which coroners' juries may be led into when dealing with technical matters, let me quote the rider added to the verdict after a railway accident: "That in future all axles should be tested to breaking-point before being used."

Suicide.

Attention has already been called to the divergence of practice in regard to verdicts of suicide and *felo-de-se*. But the difference does not stop here. Juries are usually reluctant to find suicide if the death can possibly be attributed to another cause, and other verdicts are sometimes returned in the face of the clearest evidence of suicide. Some coroners do little or nothing to restrain this tendency on the part of juries; others insist on accurate verdicts. The statistics in consequence are misleading and inaccurate. To give a recent instance. A woman who had been very depressed was seen running from her house in the middle of the night. In the morning her hat was found on the bank of one of the Hampstead ponds, and the body was subsequently recovered from the water. Death was due to drowning. The jury returned a verdict of "Found drowned," and the coroner emphatically expressed his dissent from the finding. I could quote many other examples.

Perhaps the most serious point is the harm which is undoubtedly done by the present practice of fully reporting sensational suicides in the newspapers. I am satisfied from cases within my own experience that the reading of details of suicide has an extraordinarily powerful suggestive effect upon weak-minded persons, and it is well known that an unusual method of committing suicide is sure to be copied by others. Apart from this, the publication of the painful letters, which are sometimes left by despairing suicides and often contain unfounded charges against innocent people, is demoralising and inflicts great distress upon the relatives. It is done to meet the demand for sensationalism, and serves no good purpose whatever. Yet it is the practice of some coroners to hand these letters to the reporters in order that they may be fully and accurately transcribed.

Inquests from the Medical Point of View.

Something still remains to be said as to the value of the inquest in investigating cases which chiefly involve medical points. Deaths under anæsthetics afford an instance. It is impossible to admit that a tribunal

consisting of a lay coroner and a jury of working men is competent to determine the highly scientific questions involved, and Sir Frederic Hewitt in his evidence before the Coroner's Committee stated that the true facts are often not brought out. I have now records of some hundreds of such inquests, and in all of them the jury found that the anæsthetic had been properly administered. This seems to indicate either that the risk of negligent administration is so slight that the inquiry is superfluous, or, more probably, that the tribunal is incapable of detecting faulty procedure. It is amusing to note the differences of view among coroners as to the effect of these inquests upon the public. The coroner for Manchester said: "The one thing I do deprecate is not the inquest, but publicity. In my practice I endeavour as far as possible to keep these matters quiet, to keep them from the public for the sake of other patients." The coroner for Birmingham stated: "One of the objects I think of holding an inquest is to maintain public confidence in the medical profession and medical institutions, and I think it does maintain that confidence for people to feel when a death occurs under such circumstances that it is inquired into and you can always put it to a jury."

Mr. Pepper in his evidence before the Departmental Committee stated that he had seen coroners go wrong many times over the medical evidence, and scattered through the volumes of the report are numerous instances where coroners have failed to appreciate the medical points. One coroner in a case of starvation attached great importance to the viewing of the body by the jury. He said: "The evidence given at the inquest to uneducated minds without having seen the body would have conveyed very little ..... having seen the body of the old woman with the bones almost through her skin, the jury immediately formed their own opinion outside the oral evidence and found a verdict of manslaughter." He was asked if he thought proceedings would not have been taken if the jury had not seen the body, and replied, "I am perfectly sure they would not, as I heard it said, 'What an absurd thing to bring in a verdict of manslaughter.' I have not the slightest doubt that that woman was convicted purely on the viewing of the body." It is clear that such a case ought to turn solely on the medical evidence. Starvation can only be proved by excluding all possible pathological causes after an exhaustive post-mortem examination, and an appearance of emaciation, however extreme, is not of the least value as evidence of criminal neglect.

Another coroner stated that if a doctor reported to him that he could find no trace of injury or disease in a body and did not know the cause of death, he was satisfied that it was due to natural causes. Yet another indicated that it was his practice not to order post-mortem examinations in cases of bodies found in the river. He simply advised the jury to return a verdict of "found drowned."

Procedure at Inquests.

This is often lax and irregular. I know of one coroner in a large town who always calls the same jury, and if he is not sure that they are going to return the verdict he wants he retires with them in order to assist them to arrive at it. Another coroner was shown in evidence given before the committee to have been in the habit of holding private inquiries on oath without a jury.

The "view" is another relic of antiquity. It was originally necessary to establish the fact that there was actually a body whose death was to be investigated. Now it is useless and disagreeable. It is urged that it enables the coroner and jury better able to follow the medical evidence. But this can only apply in the case of wounds, and to be of any value the jury should see, not only the surface of the body, but also the injuries produced in the internal organs. Its uselessness is shown by the fact that it is not required by the magistrate or grand or petty juries.

But the greatest objection to the present system, in my opinion, is the unnecessary pain it inflicts upon witnesses. It is always a trying ordeal to appear at an inquest. A person recently bereft of a loved one, probably under tragic circumstances, is required to face a crowded and curious court in a state of great distress and reveal all sorts of private and domestic details. The great bulk of the cases are non-criminal, and it is difficult to see the necessity for publishing these details broadcast in the newspapers. The court is open to all and sundry, and sensational cases become almost shows. It is this feature of the inquest, above all, which is responsible for the non-reporting of doubtful cases.

The practice of requiring a body to be formally identified by a near relative is distressing and often totally unnecessary. It involves a visit to the mortuary, where other bodies in various stages of putrescence may be lying. Where there is no doubt as to the identity there seems no reason why this purely formal evidence should not be taken privately before the inquest.

Proposals for Reform.

We have seen that the fundamental objection to the present system is the absence of any definite result from the verdict commensurate with the pain and expense involved. The inquest verdict has no legal weight and does not settle legal questions; it has frequently little scientific value and does not provide accurate medical statistics. Reform should take the line of giving it weight for one or other of these purposes. We cannot have both, since the modes of inquiry demanded are radically different. If it be decided that the office is essentially judicial in character, then the coroner should always be a lawyer of high standing, legal procedure should be observed in his court, and he should be bound to observe the law of evidence. His court should rank as one of first instance, and he alone should investigate charges of murder and manslaughter and commit for trial, no magisterial proceedings being taken in his cases. In the matter of accidents he should possess the powers of a county court judge, and his decision in claims for compensation should be binding until upset by a court of appeal.

The other alternative is to regard the inquiry as held primarily for medical and scientific purposes, and only incidentally for the detection of crime in so far as medical knowledge can be utilised for that purpose. The coroner under this system should be a highly qualified medical man, and his function would be to determine the pathological cause of death, leaving all legal questions to be settled by other tribunals. In a case of murder or manslaughter for which a person had been arrested he would either leave the investigation entirely in the hands of the magistrate, or he would take simply medical evidence and such other evidence as bore upon the pathological cause of death and would then send a report to the magistrate who would finish the case. In a case of accident he would settle once and for all whether the condition was due to disease or injury, but he would leave all questions of responsibility, claims for compensation, and so on, to the properly constituted legal tribunals. The jury would not be necessary, and only representatives of the deceased, of persons concerned, and of the police should have a right to be present. No account would be published in the newspapers. With this simplified and semi-private procedure medical practitioners would hesitate far less to report doubtful cases.

It will be urged against a private inquiry that it will lead to the "hushing up" of questionable cases. To this I reply that it is only the hushing up of crime which matters, and with this question the medical coroner would not be dealing. The only hushing up possible would be in regard to details of a pathological character, and I see no reason why it should be published abroad that a man died from syphilis or alcoholism. This objection is not found in Scotland, nor, as far as I know, in France and Germany, where a private inquiry is held. Finally, the present system affords no safeguard against this abuse, as was conclusively shown in evidence before the Departmental Committee.

Certification of Death.

Of the two courses I have outlined, my own view is that the medical investigation should prevail, and with it should be combined reform in the method of certifying deaths. The absence of any satisfactory method of investigating generally the causes of death from the scientific point of view hinders the progress of medicine, and renders social legislation based upon medical statistics difficult and uncertain. It is just the deaths in which the pathology is obscure that would yield the most valuable information, and every day cases which would furnish knowledge of great scientific interest are irretrievably lost. Further, the system of handing certificates of death to the relatives naturally leads medical practitioners to use terminology hiding the real nature of the death in cases where it reflects upon the character of the deceased. We know that in such matters

as alcoholism, venereal disease, and abortion the Registrar-General's statistics are quite unreliable. Under the system I propose every death certificate would be sent straight to the coroner. Practitioners would then be able to state freely the true cause. The certificates would be read by a medical authority instead of by a lay registrar, and in cases where they were not perfectly satisfactory the simplified investigation I have suggested would follow.

Agitation for reform of the coroners' law must come from the medical profession, for it is they alone who can be fully aware of the dangers and deficiencies in the present system.

MAN'S MENTAL EVOLUTION, PAST AND FUTURE.

BY HARRY CAMPBELL, M.D., B.S. LOND., F.R.C.P. LOND.,
PHYSICIAN TO THE WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM.

III.[1]

Why the Adoption of Terrestrial Life Favoured Mental Evolution.

THERE is no doubt that if the pre-human apes had remained arboreal they would not have advanced beyond the mental level of existing anthropoids. Else why have these advanced no farther? Evidently terrestrial life introduced conditions which made conscious intelligence increasingly helpful in the struggle for existence, and in consequence there took place a continued selection of the most intelligent individuals, with the result that the mental level steadily rose. What were the new conditions favouring this higher mental development? They were connected, I suggest, with the search for food, above all animal food, which was probably the main attraction towards a terrestrial life. Now, observe that the capture or destruction of an animal endowed with special means of eluding its foes is a more difficult feat than the mere culling of a fruit or even the digging up of a root. The homo-simian when he started on his terrestrial career found himself under conditions which made mental evolution inevitable. Lacking alike the instinct and the natural weapons of the carnivora, he *was obliged to rely upon his superior intelligence in hunting his prey.* For blind instinct he had to substitute strategy, for natural weapons weapons made by hand. When, therefore, the homo-simian started on his career of hunting, intelligence began to count in the struggle for existence as it had never counted before, and mental evolution was correspondingly accelerated.

The importance of the struggle for animal food in furthering mental evolution becomes apparent when we reflect that it was this struggle which induced the evolving man, devoid as he was of all natural weapons, to fashion, first weapons, and later implements. The first employment of a stone or tree branch as a weapon was a tremendous event in man's mental evolution, for it led on to the artificial fashioning of weapons and implements, and so, ultimately, to all mechanical aptitude. It is safe to say that had the evolving human never manufactured these his mental evolution would have been arrested at an early homo-simian stage. For, observe, their employment introduced a new factor into the intra-speciem environment: it *raised the mental standard needful for successful struggle.* The first employment of crude weapons by the few, owing to the advantage which it conferred in the struggle for existence, *created a new standard* and (by an elimination of those incapable of attaining to it) compelled a levelling up of the entire species to that standard. And so in regard to every fresh advance in mechanical or strategic skill.

Here, again, we have an illustration of the principle that it has been the conditions self-created by the evolving man which have determined his phenomenal mental ascent.

When the evolving human started on his rôle of intelligent hunter armed with hand-made weapons, as distinguished from the instinct-led hunter armed with natural weapons alone, he began a struggle in which it was inevitable that a higher and ever higher intelligence should continue to tell, until a grade of intelligence had evolved sufficient to make him supreme in hunting skill (so far at least as the materials—wood and stone—at his command permitted). This grade of intelligence corresponded, we may suppose, to about the twelfth stage of man's development.

The instinct-led carnivore has evolved just so much intelligence as with its anatomical endowments was serviceable to it in the hunt. Any further intelligence would be useless. Similarly, on the principle that mental evolution does not advance beyond the stage needful for adaptive service, if the struggle for animal food had been the sole factor in determining man's mental ascent, and had it never occurred to him to breed animals for food, he would never have evolved beyond the mental level needful to make him supreme as a hunter. Just as each species of carnivore, regarded as a butchering machine, represents an end-point, so man's supremacy as a hunter represented an end-point which, under the conditions obtaining, was bound sooner or later to be attained.

The male being the hunter, it was the male who fashioned the weapons and implements and devised the traps, and it was thus chiefly the male who developed the mechanical and other mental aptitudes needful for the chase, such as physical courage and love of adventure. Doubtless all these characters tend to be inherited by both sexes, but probably more by the male than the female sex. It is certain that an innate mechanical aptitude is much more frequently displayed by boys than by girls: in the former it not infrequently amounts to a veritable passion.

It must not be supposed that the homo-simian lived on animal food alone. Vegetable food was also eagerly sought, but its gathering did not involve any high degree of intelligence. Doubtless he soon learnt to pull up roots, and before long to dig them up by means of a stick; but it was probably not until the evolving man had made his way up many rungs of the mental ladder, as the result of the conditions initiated by his career as hunter, that he exercised much intelligent thought over his vegetable food. By that time he had begun to employ artificial methods in its preparation, and I do not think that this happened until comparatively late in his evolutionary career, probably not until he had become an accomplished hunter. These artificial methods at first consisted in sun-drying, grinding, maceration, and the like. Cooking, as I have elsewhere contended, although of great antiquity, was not introduced until a later period.

I much doubt if the evolving man would ever have acquired sufficient intelligence to prepare his vegetable food artificially, had it not been for the influence of hunting in developing his mentality. The conditions introduced by hunting were themselves sufficient to enable man to rise to the mental altitude needful for supremacy in the hunt. Before, however, he had reached this stage other factors, such as intertribal warfare and polygamy, came into force, and coöperated in furthering his mental advance. But of these, later.

Why the Mental Evolution of the Extant Anthropoids has become Arrested.

Of the three or four large apes which existed at the time the pre-human ape started on its phenomenal mental career, all but the latter were destined to have their psychic advance cut short. Among them were the ancestors of the extant large anthropoids—the gorilla, the ourang, and the chimpanzee. How comes it that, while one ape has mounted to the fifteenth rung of the mental ladder, none of these three anthropoids has advanced beyond the fifth? Gifted with considerable intelligence, and endowed with almost human hands, capable of giving effect to a higher intelligence, how comes it, I ask, that there has not been an uninterrupted selection of superior mental types among them, carrying that intelligence far beyond its present limit? For while it is quite possible that the large anthropoids have made some mental progress since the human started to evolve from the anthropoid, we may regard it as fairly certain that their progress has long since been arrested.

The answer is not far to seek. Once the pre-human anthropoid, abandoning an arboreal life, had fairly embarked on its homo-simian career, the chance of any other anthropoid evolving into a superior being was once and for ever destroyed. The evolving human could brook no rival: there was room but for one species of man in the world. The other anthropoids, no longer a match for his superior

[1] Articles I. and II. were published in THE LANCET of May 3rd (p. 1280) and 10th (p. 1333), 1913, respectively.

intelligence, were destined from henceforth to lurk in the depths of the forest and to hold him in deadly terror, and hereafter, though surrounded by animal foes, the evolving man had no serious rival but his own kind, and it was this rivalry which led, as we have seen, to his still further mental ascent.

Doomed to an arboreal life, the existing apes are placed under conditions which render further mental evolution impossible. Here we have an admirable illustration of the truth that it is the environment of a species which determines whether or not it shall evolve mentally. The environment of the apes being stable, they remain at the same mental level. They need no higher mental endowment than that which they actually possess, since with it they have attained to the most perfect adaptation to their conditions which is biologically possible.

While the three larger apes—the ourang, the gorilla, and the chimpanzee—are on much the same mental level, the smaller gibbons are on a considerably lower plane. Why, bearing in mind the enormous period they have existed, and the fact that they are endowed with prehensile power capable of giving effect to a higher intelligence, they have not reached the mental level of the higher apes, it is impossible to say without a more adequate knowledge than we possess of the conditions of their life. Had we this knowledge we should doubtless find that the conditions are such that their present mental endowment entirely suffices to meet them, and that a richer would therefore confer on them no advantage in the struggle for existence.

I have argued that, directly the evolving man abandoned his arboreal life and became actively engaged in the search for animal food, he was bound to evolve sufficient intelligence to become a hunter of supreme skill. The competition for animal food among beings possessed of hands, but of no natural weapons of offence or defence, alone would have sufficed to raise him thus far (say, to the twelfth stage), even in the absence of contributory factors; but before this stage was reached at least three other factors lent their aid, with the result that mental evolution was advanced to a level beyond that needed for successful hunting—i.e., to the fourteenth or fifteenth stage. These factors were: (1) polygamy; (2) inter-tribal warfare; and (3) factors influencing the evolution of the feelings.

1.—*Polygamy a Factor in Mental Evolution.*

If polygamy prevailed during a long period of man's evolution, and if the most intelligent men secured the most wives and left the most children, its effect must inevitably have been to forward man's mental evolution. I think there can be no doubt that man is polygamous by nature and that he is descended from a polygamous ape. We know, unfortunately, very little about the ways of the existing apes in the natural state. The gorilla is said to be polygamous by some observers; no direct evidence concerning the marital habits of the remaining apes is forthcoming. We have, however, indirect evidence that the large apes are polygamous in the fact that the males are far more powerful than the females, a difference only observed, so far as I know, in the case of polygamous animals. The larger size and superior muscular development of the man as compared with the woman seem to me to prove that he, like his ape ancestor, is polygamous by instinct, and I cannot doubt that the evolving human was a consistent polygamist.

Not only is there anatomical, there is also physiological, evidence of man's polygamous nature. It would be affectation to deny that moral considerations alone keep a large proportion of civilised men from polygamous practices. To assert this is not to condemn them, but rather to commend successful resistance to a natural, though no longer practicable, instinct. And, after all, the polygamous instinct should not be too readily held up to condemnation, for, if I mistake not, its promptings have been instrumental in raising man to a mental level to which he might otherwise never have attained. I am not, of course, suggesting a revival of polygamy. Its practice is wholly inconsistent with modern conditions and ideals, and is never likely again to receive the sanction of public opinion; but I fear it must nevertheless be acknowledged that with its disappearance there has disappeared an agency which, in the case of normal tribal communities at least, has worked potently in furthering man's mental advance. Learned anthropologists may be able to adduce instances of tribes in which polygamy does not prevail. I believe, however, that the more closely we study what may be termed normal tribal life, the stronger will the evidence of genuine polygamy be found. The conditions provided by comparatively small islands and isolated, inaccessible parts of the mainland are not compatible with normal tribal life (such as obtained, e.g., for tens of thousands of years during the pre-cibicultural period), and the marital customs of tribes living in such regions cannot be regarded as typical of it.

Under primitive conditions success in securing wives depends upon excellence of physical and mental endowment. In early homo-simian times this success rested upon mere brute force and courage; in the case of the polygamous mammals below man these are certainly the essential factors in ensuring success among rival males. But already in primitive human times another factor came into play—I mean mental personality. It was the man combining a good physique with high mental endowment who became the tribal leader and secured the largest number of offspring. A man of magnificent physique but of poor intelligence is not likely to wield the same influence over his fellows as one of average physique and commanding mental personality. Indeed, one of indifferent physique may, by sheer force of personality, control those who are greatly his superior in physical strength. School boys will laugh at an irate giant unskilled in the art of enforcing discipline, but they tremble at the mere glance of a cripple endowed with the genius to govern. I have seen a crowd of hooligans in the act of ill-treating an animal cower before a frail girl who rushed to its rescue, although they could have torn her to pieces in a few moments. Such triumphs of personality over mere brute force depend not upon any single mental attribute but upon many. The chief of a tribe needs courage, promptitude, and tact: a nimble intelligence, a quick apprehension. We may be sure that the consistently wise man, the man who constantly proves himself to be in the right, the clear-seeing, far-seeing, resolute, brave man, ever ready to take the initiative and to share the common danger, will come to be looked up to, feared, obeyed—in short, be recognised as a leader. If to these qualities he adds a sense of justice, he will not only be feared but respected, possibly loved. This is the type of man who rises to leadership, kingship, who leads his tribe to victory over other tribes, and extends his dominions and power. It surely cannot be doubted that among normal tribal peoples such a man tends to leave more than the average number of offspring?

A genius is one whose mental endowment is much above the mean. In this sense every age from the earliest homo-simian times has produced its geniuses. What constitutes a genius at one stage of evolution represents no more than average ability at a subsequent stage. Now, it has been these persons of outstanding mental endowment who have been most successful in the struggle with their fellows from early homo-simian times. When the stage of organised tribal life was reached it was, above all, the man with the genius to govern who became the leader and left the most numerous progeny.

I am aware that tribal leadership does not always fall to the ablest, and it is sometimes determined by other considerations, such as heredity; but, taking the entire period of man's tribal existence, we may, I think, safely conclude that leadership has in the main fallen to the most fit.

Obviously, polygamy can have no effect in furthering mental ascent unless the polygamous men have exceptional mental endowments. When, as in some of the civilised communities of the East, the practice of polygamy depends upon inherited wealth rather than upon brains, its influence in advancing mental evolution is less decisive. Some influence in this respect it may still have in the case of such peoples, because probably the wealthy and powerful among them have more than the average ability.

It seems likely that during the early phases of civilisation polygamy was not uncommon, and that it continued to exercise its favouring influence on mental evolution. How far it would do so under modern conditions is a most interesting question. Provided the number of births were not restricted, it would probably exert its ancient influence, for only those possessed of the necessary wealth—i.e., those above the average mental level—would be in a position to practise it. To ensure the full effect of polygamy in advancing mental evolution, however, a body of expert

eugenists would be needed to decide who, by virtue of exceptional endowment, were entitled to polygamist privileges. In this way a race of super-men might, theoretically at least, be bred, a consummation devoutly to be wished but manifestly impracticable. Yet the biologist may perhaps be pardoned a secret regret that larger scope than is possible under modern conditions cannot be given to the moral and intellectual giants of the world, to enable them to hand on their rare gifts to a race which can ill afford to forego them.

It is obvious that polygamy could not operate in the manner I have suggested unless mental attributes were hereditable. It is certain that they are. Moreover, the probability of mental pre-eminence being inherited is greater in the case of a polygamous than of a monogamous man; for not only does this probability increase with the number of offspring, but also with the number of wives, for the greater the latter the greater is the opportunity for favourable blendings. Surprise has often been expressed that genius is seldom inherited.[2] This is presumably because the man of genius is so rarely suitably mated. If, however, a highly gifted man mates with a large number of partners, the chances of a union favourable to the production of highly gifted offspring are so much the greater.

It will be observed that so far as polygamy has promoted mental evolution it has been by the selection of the ablest men. The advance, that is to say, has come through the man, and it is for the biologist to determine whether the superior mental endowment of the polygamist has been inherited by the two sexes alike among the children, or whether it has tended to be limited to the male sex. We know that certain sexual characters tend to be inherited by one sex only, and that the extra strength of polygamous males, as well as their weapons of offence, have resulted from sexual rivalry, and the question arises whether the superiority of the man's mental endowment over the woman's may not be traceable in some degree to his polygamous past.

(To be concluded.)

THE FINAL REPORT OF THE ROYAL COMMISSION ON UNIVERSITY EDUCATION IN LONDON.

IV.[1]

WE come now to the very important recommendations of the Commission as to advanced medical studies. This part of the curriculum is dealt with in the following order:—

1. Clinical instruction in the general hospital.
2. Clinical instruction in special hospitals—fevers and insanity.
3. Medical science which must be taught in close connexion with a hospital medical college—pathology. In this connexion the intermediate sciences of anatomy, physiology, and pharmacology will be considered.
4. Medical sciences which may be taught outside hospital medical colleges, such as public health and forensic medicine.

1. *Clinical instruction in the general hospital.*—This question was raised before the Commissioners by Mr. Abraham Flexner, the gist of whose evidence is quoted in the report in the following words:—

> On the clinical side ..... no progress has as yet been made towards formulating the concept of the clinician as teacher, in the sense in which the concept of the pathologist or physiologist has been formulated. It is still supposed that because a man is an accomplished physician he is an excellent teacher. Clinical teaching in London remains an incident in the life of a busy consultant who comes to his post through promotion on the basis of seniority, and visits his too miscellaneous wards twice weekly in the afternoon between, perhaps, 2 and 4, in company with his house physician and clinical clerks. There is no certain or direct interaction between the fundamental scientists and the clinicians; except in the region of morbid anatomy, some elementary bacteriology, and physiological chemistry, they barely touch. The clinician lacks the time, even if he has had the training, which will enable him to bring to bear upon clinical problems the artillery which chemist and pharmacologist are forging.
>
> Nor are the teaching hospitals equipped and organised with a view to teaching of university quality. They are admirably designed and conducted for the care of the sick on a routine basis. But their laboratories need to be greatly extended and their staffs completely reorganised before they can serve as university hospitals. The clinical material is insufficiently classified; there is nothing like a comparatively permanent scientific or clinical staff, without which continuity and thoroughness of study are alike impossible. The house staff is composed of recent graduates serving short terms. The system therefore does not tend to promote scientific study and teaching; it makes distinctly against them. If results are achieved, they are fragmentary and entirely a matter of individuals. Nor even so does any special consequence attach to them. No certain reward stimulates the young physician to engage in original work. His cue is faithful routine. In consequence his preliminary scientific training goes largely to waste.
>
> Medical education is, therefore, in London not an organic whole; it falls into two more or less unsympathetic parts.

The fundamental principle underlying Mr. Flexner's argument, the Commissioners find, is that university teaching can be given only by men who are actively and systematically engaged in the advancement of knowledge in the subject they teach, a principle upon which they insist strongly in dealing with the general question of the essentials of university teaching and the position and duties of university professors. Mr. Flexner says in application of this view to the case of clinical teaching:—

> It has been taken for granted ..... that vital teaching requires the proximity of research. This is not as yet universally conceded. The family doctor being what is called a practical man, it is urged that he is best trained in an unambitious institution where he can be taught by experienced practitioners what to do in the definite emergencies which he will encounter. Such medical teaching regards itself as preparing the student to be a higher sort of artisan. As against it one may urge that medicine is, in the strict sense, a profession—a profession being definable as an activity in which practice and progress are closely interwoven and constantly reacting on each other. The more isolated the doctor is apt to be, practising in the country or in a remote village, the more important that a medical training which thoroughly rouses his intelligence should send him forth with a momentum that may carry him further every day of his life.

Mr. Flexner's remedy for the defects he critisises is explained by him as follows:—

> In order ..... to reconstruct a London medical school on modern lines it would be necessary completely to reconstitute the staff, to break up the present method of appointments by seniority, to salary teachers of medicine in order that they may devote their main time and thought to teaching and investigation, to introduce increased differentiation of material, and to add to the existing hospital wards laboratory equipment along the lines in which the clinician is interested in working. It must be made possible to import into London the scientific producing clinician—devoted to teaching and research—from any place in which he may be found; and younger men must be taught that their chances of higher appointments depend not on using themselves up in tutorial coaching, not on faithfully stepping into the breach when the superior is absent nor following in his footsteps when he is present, but on the development of their own powers along genuinely productive lines.
>
> ..... The first step in the direction of modernising medical education would appear to lie in the total conversion of an existing school or in the creation in London of a new school, the clinical faculty selected upon precisely the same lines as the scientific faculty, the entire body of teachers animated by one ideal and working as an organic unit towards a single end. The clinician's relation to the hospital must reproduce the chemist's relation to his laboratory.
>
> A school on the lines above pointed out would, of course, represent a radical departure—nothing more radical, of course, than is already in effective operation elsewhere—but something as yet unknown in Great Britain. It would be impossible to domesticate harmoniously these two types of medical education within one university faculty. A school of medicine may be one or the other: it cannot simultaneously be both. If the proposed medical school is to embody a feasible and stimulating ideal, fairly up to the standard which successful experience has elsewhere vindicated, and capable in time of completing the regeneration of medicine which the laboratory men have begun, then it cannot live peacefully with another ideal which it has come to destroy.
>
> The present schools may be detached, but need not be suppressed. Once create a model, and time may safely be left to do the rest.

Sir William Osler, supporting the view that complete reorganisation of medical education in London is necessary, described to the Commissioners his plan of "the hospital unit," introduced by him at the Johns Hopkins University, and capable of considerable variation to meet particular needs. The essence of the contention of Sir William Osler and Mr. Flexner seems to the Commissioners the same—viz., that the principal teachers of clinical medicine and surgery in all their branches ought to be university professors in the same sense as the principal teachers of chemistry or physiology in a university. The Commissioners say:—

> If this is once admitted the rest follows. It is simply in each case a question of appointing a university professor and arranging that his department shall be so organised that he will be able to do his work. A professor of literature or history must have his library; a professor of chemistry must have his laboratory and assistants. What does a professor of medicine require? Sir William Osler's answer is that he requires the organisation of the hospital unit if he is to carry out his three-fold duty of curing the sick, studying the problems of disease, and not only training his students in the

[2] This has been used as an argument against the view that genius is of the nature of a mutation.

[1] Nos. I., II., and III. were published in THE LANCET of April 26th (p. 1184), and May 3rd (p. 1251) and 10th (p. 1336), 1913, respectively.

technique of their art but giving them university instruction in the science of their profession.

The Commissioners at this point make some most interesting and valuable remarks upon the assistance which science can give in the diagnosis and treatment of disease, and while admitting that in England advantage is taken of this assistance they contend that proper coöperation between theory and practice, research work and clinical work, cannot exist in a medical school so long as the physicians and surgeons do not give their time to attacking the problem of disease, and become the directing and controlling members of groups of men working towards a common end. While approving of the English system of clerks and dressers, they consider that demonstrative teaching requires more time for preparation than the present teachers can give, while there is room for men in active practice to teach. The clinical teacher cannot be superseded by the bacteriologist.

But the Commissioners find that there is no inherent difficulty in combining demonstrative and clinical teaching, and report as follows, relying largely on the evidence given before them by Dr. Henry Head:—

> Dr. Head explained to us how in his view the value of demonstrative teaching might be greatly increased if the students could be brought into much more intimate connexion with it by being formed into small classes working in far closer relations with the professor and his assistants. According to his plan, a university professor of medicine, let us say, would have a class of not more than 20 to 25 students who would come to him entirely for three months, and he would put them through a course with the help of his assistants. These students would receive personal attention. It is useless, he says, for men to come expecting to get a serious university education if they are taught in large groups of 400; but in addition to the men who are actually under the professor's eye, working in his wards, working with his assistants, working in his laboratories, acting as "famuli" to him, he would throw the whole of the back benches of the auditorium at demonstrations open to anybody, so that there would be no difficulty whatever for a student, no matter who he was, to come in and listen; but all the privileges would be kept for the students in the inner ring. It would be they who had to deal with the patients not only in the theatre but also in the wards. They would act as clerks or dressers to the professor. They would help the assistants in the preparation for the clinical lecture, they would take part in the weekly symposium or *seminar*, and at the same time they would have systematic courses which would be carried on by the professor and the assistants. This teaching would be possible only in the final year of the course, during which each student would come under three professors for three months' instruction in medicine, surgery, and gynæcology. All the rest of the instruction would, on Dr. Head's plan, be carried on in the medical schools as at present. There are difficulties about this proposal to which we shall refer later, but they do not affect the question of the combination of the two forms of teaching.
>
> In our opinion the University of London ought not to be satisfied with the present clinical teaching in the London medical schools. It appears to us beside the point to say, as some witnesses do, that the time of training is not the time for research, that a man has enough to learn then in order to make himself a good doctor, and that the leisure for research comes afterwards when he has taken his degree. It is not suggested that the undergraduate should engage in research in this faculty more than in any other, but that is no reason why he should not receive a university education. We have made it clear in the earlier part of our report—(*a*) that university education can be given only by university teachers, and (*b*) that it is a necessary condition of the work of university teachers that they should be systematically engaged in original work. Again, it is said that a good deal of scientific teaching is done by the present teachers, although they are in active practice. Fortunately, there are always exceptional men who succeed in doing things which the conditions of their life and work make difficult for most; but we must consider what conditions are conducive to the end in view and likely to promote its attainment as the general rule and not as the exception. Having regard to the growing complexity of the subject of medical science, it seems to us that it will become more and more difficult, as time goes on, for the really scientific teaching in the subject to be given by men whose powers are largely required for the arduous work of medical practice, and whose minds are quite rightly occupied for the most part with the exacting claims and daily anxieties of their professional work. It is not conclusive that many eminent British physicians and surgeons have in the past made important contributions to the advancement of knowledge in their subject. We doubt if it can fairly be claimed that the representatives of British medicine make their proper contribution to the scientific literature of the subject to-day, and although admirable work is still being done, it is all a matter of individual effort and generally carried out under difficulties. But quite apart from this, it makes all the difference in the world to the students of a university whether they have received a purely professional training or a university education in the course of which, as Professor Starling describes it, they will come into contact with the fringe of their subject and will realise that it is a subject which is growing—that they can even play their part in making it grow. "That," he says, "is what I regard as the university spirit, not simply diagnosing a patient and deciding what we do for him in order to earn our fee, but what we can get out of this case in order to do better next time; how can we get some knowledge out of this patient in order to have more power when we have another man in the same condition."

For any liberal and scientific profession the Commissioners find that a university education has always been an advantage, and not least by those who do no higher work but pass from their university to their profession. But now that it is impossible to teach the whole range of medical science in the course of a medical curriculum the aim of medical education must be to equip the student so that he can go forward by himself. They refute the objection, as far as the student is concerned, that the time for training is not the time for research, and consider that in respect of the professoriate private practice to a limited amount should be permitted as a safeguard against putting the scientific interest in the disease above the welfare of the patient.

The Commissioners next considered various proposals for reform submitted to them. These were: 1. That a hospital should be organised on the "unit" system but reserved for post-graduate work. This view they held would not ensure that the undergraduate course would be a university education in quality and spirit and aim. 2. That individual professors should be appointed in a number of different medical schools from the members of the existing staff, and that their clinics should be mainly though not exclusively post-graduate. This proposal the Commissioners thought "would not give the university even the beginning of an organised faculty of medicine." 3. That professors should be appointed in different medical schools, and that two classes of students—university and non-university—should work together throughout most of their course, but that a final year of systematic training by the professors should be provided for the university students. They considered that this scheme would not provide university education for anyone throughout his whole course. 4. That a whole hospital should be organised throughout into as many "units" as the beds will allow, but that the present physicians and surgeons should take the place of professors. The defect of this proposal in the eyes of the Commissioners is that the present physicians and surgeons have neither had the right training nor have the time to fulfil the duties of university professors. Moreover, they find the expense of the scheme prohibitive.

The general conclusions arrived at with regard to clinical instruction are as follows:—

> 1. The standard of the teachers in these subjects ought not to be different from that of university professors in other subjects, and it is therefore necessary to appoint and pay professors of the various branches of clinical medicine and surgery who will devote the greater part of their time to teaching and research.
>
> 2. The complex nature of the science of medicine and its dependence for assistance upon other branches of science necessitate coöperation, and the special organisation of a professorial department in order to enable the professor to carry on research successfully and also to give scientific instruction in the subject.
>
> 3. The kind of organisation known as the "hospital unit" appears to us well fitted for attaining this end. It consists of: a professor with the control of wards; an out-patient department; assistants nominated by the professor with a view to complementing his own knowledge and affording him the special assistance he requires to carry on research in the direction in which he is interested; and, finally, laboratory accommodation in close proximity to the wards, not only for the service of the wards and the examinations and procedures connected with the diagnosis and treatment of the cases, but also for the purposes of research.
>
> 4. For scientific instruction in medicine the kind of teaching known as the clinical demonstration or lecture appears to us of great value, and we think in some form or other it ought to be systematically given. The time and knowledge required for this kind of teaching cannot be expected from the man in large practice. It needs a man who is devoting his life to the pursuit of science in his subject and who is aided by a competent staff of assistants.
>
> 5. It is equally necessary for the student in every department of medicine and surgery that he should have free access to patients in the wards and out-patient departments and learn by personal experience the whole technique of his art. For this purpose we think the English system, under which each student serves for a time as a medical clerk and a surgical dresser under the supervision, direction, and individual instruction of one of the physicians or surgeons of the hospital is admirable, and should be continued. The special merit and value of this system, however, does not lie in the fact that the teachers are, as in London, actively engaged in the practice of their profession. The same teaching could be given by the professor with as good practical results, and certainly with greater educational effect from the point of view of medical science, though we think that it will best be given if the professor is also allowed some opportunity for private practice.
>
> 6. It will not be financially possible to appoint a sufficient number of professors to enable them to give this clinical instruction to all the students in the small groups into which they are at present divided under the physicians and surgeons of the London medical schools. Some of this work could be done by the assistants to the professor, and the more senior assistants would probably be exceedingly well qualified for the purpose. Besides, there will be the opportunity in this case of calling in the more experienced assistance and coöperation of members of the profession in active practice, and if this could be done it would be of advantage both to them and to the students.

(*To be continued.*)

ASYLUM WORKERS' ASSOCIATION.—The annual general meeting of this association will be held at 11, Chandos-street, Cavendish-square, London, W., on Wednesday, May 28th, at 3 P.M. Sir John Jardine, M.P., president of the association, will take the chair.

THE ROYAL SOCIETY CONVERSAZIONE.

THE first annual conversazione of the Royal Society was held on May 7th, in the rooms of the society at Burlington House, when Sir ARCHIBALD GEIKIE, the President, received a large number of distinguished guests.

Although the exhibits were fewer in number than usual they were full of scientific interest, and, generally speaking, were less attractive to the mere sightseer. There was no brilliant spectacle, with perhaps the exception of Mr. C. V. Boy's beautiful experiments with soap films. The soap film is rapidly rotated on a spinning wheel, with the result that a most beautiful play of colours is developed, as the thickness of the film varies under the influence of centrifugal motion. Close by Professor C. R. Wilberforce showed some interesting experiments with ripples. The ripples produced on a water surface by a vibrating dipper were projected by intermittent light so as to appear stroboscopically in slow motion on the screen, a similar phenomenon to that of the zoetrope. Professor J. Norman Collie and Mr. W. S. Patterson showed the vacuum bulbs in which apparently some of the hydrogen present at a low pressure has changed into neon and helium under the influence of the electric discharge. These investigators have now proved, at all events, that neon and helium cannot be obtained from either glass or from the electrodes by heating alone, nor is glass when heated to near its softening point and subjected to the action of cathode rays permeable to neon or helium, and so neither element can get into the apparatus from the atmosphere. Professor Leonard Hill exhibited examples of his kata-thermometers, or comfort-meters, which, as was pointed out in a paper by him in our issue last week, are designed to disclose the heating and ventilating phenomena in a living room, together with the effect of clothes on the body. By this apparatus the conditions can be determined which give comfortable loss of body heat and which prevent depressing effects of uniformly heated air on cutaneous nerves. The working of a very ingenious apparatus called a CO_2 thermoscope was explained by a representative of the Underfeed Stoker Company, Limited. Primarily it is designed for the purpose of estimating the amount of carbonic acid in furnace gases with a view to effecting an economy of fuel. The action of the apparatus depends upon the heat developed when CO_2 is absorbed by caustic soda powder. By means of a specially graduated thermometer the percentage of gas can be read off at once after passing a given quantity of gases over the caustic. A very attractive exhibit was the collection of artificial crystals prepared by Professor W. J. Pope by slow crystallisation from aqueous solutions. The crystals showed beautiful proportions and clean-cut facets. In some cases the specimens consisted of an inner crystal of one metallic salt, with a crystal of another salt grown outside it. Mr. H. G. Plimmer's microscopical exhibition of blood parasites was perhaps the most interesting contribution from medical science at the conversazione. The specimens shown were: (1) Schizogony of Schizotrypanum cruzi in the heart muscle of a child which died from Chagas's disease; (2) skin from an Oriental sore, showing Leishmania furunculosa; (3) blastomycosis of skin; (4) trypanosome in blood of Malay parrakeet; (5) hæmogregarines in blood of a Phayre's tortoise; (6) division form of trypanosoma rhodesiense; (7) hæmogregarines in blood of Bengal monitor; (8) schizogony of above, in the lung; (9) octomitis in blood of a bull-frog; and (10) spirochæta pallida from the lung of a syphilitic fœtus. Three separate exhibits had reference to the recent discovery of a palæolithic human skull and mandible at Piltdown, Fletching, Sussex. Professor G. Elliot Smith showed a brain cast obtained from this skull, and a specimen was also shown representing an attempt at the restoration of the features of the Piltdown man's brain. The actual remains themselves were exhibited by the authorities of the British Museum, while Dr. A. Smith Woodward gave a lantern demonstration of the same subject. Dr. S. F. Harmer exhibited specimens of polyzoa taken from the pipes of British waterworks which have given serious trouble to water engineers. It appears that when the water was admitted into the pipes without filtration these organisms entered and served as the food of the microphagous animals, which themselves became the prey of carnivorous forms. Thus polyzoa have been shown to play a specially important part in making the microscopic food-supply available for other constituents of the pipe-fauna by the rapidity with which they spread in the system and the luxuriant growths which they assume. The exhibits of the Marine Biological Association were, as usual, the centre of considerable attention. On this occasion they consisted chiefly of living crustacea from the neighbourhood of Plymouth.

There were several other exhibits which numbered altogether 40, but the above are selected on account of their general interest, while in some instances there are obvious medical associations.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

MEETING OF COMITIA.

A COMITIA was held on May 8th, Sir THOMAS BARLOW, Bart., K.C.V.O., the President, being in the chair.

The following Members who were elected to the Fellowship at the last meeting were admitted Fellows of the College: John Oglethorpe Wakelin Barratt, M.D. Lond. (Liverpool); Edward Stainer, M.D. Oxon. (London); Henry Russell Andrews, M.D. Lond. (London); Francis Hugo Thiele, M.D. Lond. (London); William Philip Sutcliffe Branson, M.D. Cantab. (London); Walter Henry Maxwell Telling, M.D. Lond. (Leeds); Ernest Edward Glynn, M.D. Cantab. (Liverpool); Thomas Grainger Stewart, M.D. Edin. (London); Alexander George Gibson, M.D. Oxon. (Oxford); Frederick Samuel Langmead, M.D. Lond. (London); Henry Roy Dean, M.D. Oxon. (Sheffield); Thomas Lewis, M.D. Lond. (London); Maurice Alan Cassidy, M.D. Cantab. (London); Charles Wilberforce Daniels, M.B. Cantab. (London); James Mackenzie, M.D. Edin. (London); and Charles James Martin, M.B. Lond., F.R.S. (London), elected under By-law LXXI. (*b*).

Diplomas in Tropical Medicine and Hygiene were granted in conjunction with the Royal College of Surgeons of England to the following:—Captain F. P. Connor, I.M.S., F.R.C.S. Eng.; Captain C. A. Gill, I.M.S.; and Miss Frances Margaret Harper, M.B.

An alteration was made in By-law CXXIV. relating to the examination for the Membership. Candidates who have not been approved by the Censors' Board can now be re-admitted to examination after the lapse of six months, instead of a year as heretofore.

A report was received from the Censors' Board recommending that the following clause in a report of the Committee of Management be adopted. This was agreed to. The clause was as follows:—

> The attention of the committee has been called to the fact that the short title of the diploma in tropical medicine and hygiene—viz., "D.T.M. England," is not sufficiently descriptive, and that it is desirable to add a reference to hygiene in the title. The committee, therefore, recommend that the short title of the diploma be altered from "D.T.M. England" to "D.T.M. & H. England."

The PRESIDENT then dissolved the Comitia.

THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE (1913).

SECTION OF PHYSIOLOGY.

THE President of this section is Professor E. A. Schäfer, of Edinburgh, and the Vice-Presidents are Professors T. G. Brodie, Francis Gotch, Leonard Hill, J. G. McKendrick, C. S. Sherrington, E. H. Starling, W. Stirling, and A. D. Waller. The secretaries are Dr. J. S. Edkins and Professors W. D. Halliburton, D. Noel Paton, and W. H. Thompson.

The number of set discussions is three. The one which appears to be exciting most interest, to judge by the number of those wishing to take part in it, is that on Internal Secretions, which will be held jointly with the Section of Medicine. The reporters in this discussion nominated by the physiologists are Professor Gley, of Paris, and Professor Biedl, of Strassburg. The second discussion is on Endogenous Protein Metabolism, and will

be held in conjunction with the Subsection of Chemical Pathology. The reporters here will be Professor Abderhalden, Dr. H. D. Dakin, and Professor G. Embden. The third discussion will be confined to the Section of Physiology, and deals with the question of Reciprocal Innervation. The reporters here are Professor Sherrington and Professor Max Verworn.

Perhaps the most interesting meetings of this section will be three laboratory meetings at which demonstrations will be given. These will be held in the physiological laboratories of the University of London; University College, London; and King's College, London, respectively. The remaining sittings of the section will be occupied by the reading of papers. The number of titles sent in so far is not great, but the papers include communications from Professor Lendemann, of Kiev, Professor Sivén, of Helsingfors, Professor Graham Lusk, Professor N. Zuntz, and Dr. Iscovesco.

The meetings of the section will take place in the rooms of the physiological laboratory, University of London. The entertainments arranged include an excursion on the Thames on the Sunday, a garden party kindly given by Dr. and Mrs. Bayliss at Hampstead, and an informal dinner given by the Physiological Society after one of the laboratory meetings. The following is a provisional programme:—

Wednesday, August 6th, and Thursday, August 7th.—Morning: Papers. Afternoon: Papers; laboratory meeting, University of London.

Friday, August 8th.—Morning: Discussion on Internal Secretions. Afternoon: Laboratory meeting at University College, followed by a Physiological Society dinner.

Saturday, August 9th.—Morning: Papers. Afternoon: Garden party at Dr. Bayliss.

Sunday, August 10th.—Morning: Picnic party on the Thames.

Monday, August 11th.—Morning: Discussion on Reciprocal Innervation. Afternoon: Laboratory meeting at King's College.

Tuesday, August 12th.—Morning: Discussion on Protein Metabolism. Afternoon: Papers.

The acting-secretary is Professor W. D. Halliburton, King's College, London, to whom titles of papers and demonstrations should be forwarded without delay.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on May 8th, Sir RICKMAN GODLEE, the President, being in the chair.

Mr. Francis Willoughby Goyder was introduced and the President handed him the Jacksonian prize for the year 1912, together with a document declaratory of the award.

Dr. William Blair Bell was introduced and the President handed him the John Hunter medal in bronze and a cheque for £50, the triennial prize for the period 1910 to 1912.

It was resolved to issue Diplomas of Membership to 89 successful candidates.

It was resolved to grant, jointly with the Royal College of Physicians of London, Diplomas in Tropical Medicine and Hygiene to three successful candidates.

A letter was read from Mr. C. C. Paterson, joint secretary to the Home Office Committee on Factory Lighting, stating that he has been asked to inquire whether the College could assist the work of the Committee by appointing witnesses who could give evidence as to damage to eyesight of persons working in factories due to defective conditions of illumination provided in such factories; and whether statistics were available from hospitals or from any Members of the College practising in industrial districts which would give information as to the prevalence of eye trouble in any special trades. Mr. Richardson Cross was requested to assist the Committee on Factory Lighting in this matter.

A letter was read from Mr. W. F. Haslam resigning his membership of the Court of Examiners, such resignation to take effect on the completion of the final examination for the Fellowship this month.—The PRESIDENT stated that the vacancy on the Court of Examiners so occasioned would be filled at the ordinary meeting of the Council on June 12th.

A letter was read from Mr. W. Bruce Clarke resigning his seat on the Council. The resignation was accepted with regret, and the PRESIDENT stated that the vacancy thus occasioned would be filled at the annual meeting of Fellows in July.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Surgeon-General Sir James Porter, K.C.B., K.H.P., Director-General of the Medical Department of the Navy, has been placed on the Retired List, at his own request (dated May 11th, 1913).

By the retirement of Sir James Porter, K.C.B., from the post of Director-General of the Medical Department of the Navy that service loses a distinguished ornament. Whether regarded in the light of his distinguished war services—Suakim, Tamai, and South Africa—or of his great administrative ability, as shown in his fostering care of hospital organisation and nursing and the improved physique of the men, "never better than at the present time," his retirement deprives the country and the naval service of a most admirable and capable head. Sir James Porter, who is a graduate of Aberdeen University and a native of Aberdeenshire, entered the Navy in 1877. In 1909 he became honorary physician to the King, and in 1910 received his K.C.B. He is now 61 years of age. He speaks enthusiastically of his career in the service, and strongly commends it to young medical men as offering an exceedingly pleasant and varied career.

Deputy Surgeon-General John Jeffreys Dennis has been promoted to the rank of Surgeon-General in His Majesty's Fleet (dated May 10th, 1913).

ROYAL ARMY MEDICAL CORPS.

Colonel H. J. Barratt has taken up duty as Assistant Director of Medical Services to the Bareilly, Garhwal, and Dehra Dun Brigades of the Seventh (Meerut) Division. Colonel H. M. Sloggett has taken up the appointment of Assistant Director of Medical Services to the Belfast District.

Lieutenant-Colonel F. R. Newland has been transferred from the Northern Command to Dover. Lieutenant-Colonel H. M. Adamson has been placed under orders for service abroad. Lieutenant-Colonel C. W. R. Healey has been granted leave of absence home from India, with permission to revert to the Home Establishment. Lieutenant-Colonel R. J. W. Mawhinny has been selected for appointment to command the Military Hospital at Nasirabad Cantonment. Lieutenant-Colonel W. H. Starr has taken up duty as Senior Medical Officer at Lichfield. Lieutenant-Colonel R. W. Wright has been appointed to hold charge of the Military Hospital at Mhow Cantonment. Lieutenant-Colonel J. Thomson has arrived home for duty from South Africa.

Major E. W. Siberry has taken up duty in the London District. An exchange of roster for service abroad has been approved between Major R. L. Argles and Major K. B. Barnett; the former officer will proceed abroad. Major R. F. M. Fawcett has arrived home for duty from Jhansi Cantonment. Major E. W. W. Cochrane has been appointed to the Aldershot Command. Major H. E. Staddon has left for service in India. Major R. J. Blackham has taken over command of the Military Hospital at Jutogh Cantonment. Major R. Tilbury Brown has been transferred to Darjeeling. Major T. C. Mackenzie, D.S.O., has returned home on completion of a tour of service with the Egyptian army. Major P. S. O'Reilly has been granted eight months' combined leave of absence home from India. Major F. W. Begbie has been appointed Specialist in Advanced Operative Surgery to the Fifth (Mhow) Division. Major A. D. Waring has arrived home for duty from Hong-Kong. Major R. McK. Skinner has been appointed to the Military Hospital at the Curragh Camp. Major J. D. Collins has taken up duty as Specialist in Ophthalmology to the Sixth (Poona) Division. Major C. W. Mainprise has been granted six months' leave of absence home from India. Major H. E. M. Douglas, V.C., D.S.O., has been notified for service abroad. Major J. Poe has been appointed to the Eastern Command for duty. Major S. J. C. P. Perry has taken up duty at the Military

Hospital, Colaba. Major J. P. Silver has been appointed in Medical Charge at Fort Camden, Queenstown Harbour. Major H. F. Shea has joined for duty at the Military Hospital, Ambala Cantonment.

Captain C. M. Finny has embarked for a tour of service in India. Captain A. E. S. Irvine has been appointed to the Irish Command. Captain J. W. S. Seccombe has been transferred from the Military Hospital at Plymouth to Devonport. Captain A. B. Smallman has been selected for promotion to the Brevet rank of Major for distinguished services of a scientific nature. Captain A. T. J. McCreery has taken up duty at Mhow Cantonment on transfer from the Military Hospital at Indore. Captain C. R. M. Morris has arrived home for duty from Sialkot. Captain W. W. Browne has left Colchester for India. Captain J. B. Meldon has been transferred from the Military Hospital at Brighton to Dover. Captain E. C. Whitehead has been appointed Clinical Pathologist to Queen Alexandra's Military Hospital. Captain A. W. A. Irwin has been appointed to the Cork District for duty. Captain H. W. Long has been appointed to Bodmin. Captain P. G. M. Elvery has arrived in Ireland on leave of absence from Cyprus. Captain A. C. Vidal has taken up duty at Aldershot. Captain T. E. Harty has been transferred from the Irish to the Northern Command. Captain E. M. Middleton has been transferred from Kyra Gali Cantonment to Rawal Pindi. Captain T. B. Nicholls has embarked for Cyprus. Captain R. J. Franklin has been appointed to hold charge of the Cantonment Hospital at Solon, Simla Hills District. Captain A. D. Stirling has been transferred from Cairo to the Military Hospital at Khartoum. Captain A. W. Bevis has arrived home from South Africa. Captain R. G. S. Gregg has been appointed Specialist in the Prevention of Disease and placed in charge of the Bacteriological Research Laboratory at Brigade Headquarters, Karachi. Captain M. J. Lochrin has been transferred from the Military Hospital at Bellary to Bangalore Cantonment. The following Captains have been placed under orders for service abroad during the coming trooping season: E. M. Pennefather, B. H. V. Dunbar, B. G. Patch, A. C. H. Gray, T. S. Dudding, R. H. MacNichol, S. H. Pallant, and W. MacD. MacDowall. Captain T. B. Moriarty has arrived home for duty from India. Captain C. J. Wyatt has embarked for a tour of duty in the Sierra Leone Protectorate. Captain W. D. C. Kelly has taken up duty as Specialist in Operative Surgery at Pretoria. Captain A. Dawson has arrived home for duty from Aden. Captain F. R. Laing has left Bordon for India. Captain C. Ryles has been transferred from Karachi Cantonment to the Military Hospital at Naini Tal. Captain M. P. Leahy has been permitted to transfer by exchange from the Indian to the Home Establishment.

At the recent examination held on the termination of the Junior Course at the Royal Army Medical College, Lieutenant C. J. H. Little was awarded the De Chaumont prize, Lieutenant L. Dunbar the Marshall Webb prize, Lieutenant H. Beddingfield the Parkes Memorial prize, and Lieutenant F. C. Davidson the second Montefiore and Tulloch Memorial prizes.

INDIAN MEDICAL SERVICE.

Surgeon-General A. M. Crofts, C.I.E., has taken up duty as Officiating Director-General of the Indian Medical Service at Simla during the absence on six months' leave of Sir Pardy Lukis, K.C.S.I.

Colonel G. W. P. Dennys, Inspector-General of Civil Hospitals, has arrived home from India on leave of absence.

Lieutenant-Colonel D. T. Lane has taken up duty as Civil Surgeon at Ambala. Lieutenant-Colonel J. M. Crawford has been granted privilege leave combined with furlough for eight months and a half. Lieutenant-Colonel H. A. Smith has taken up duty as Officiating Civil Surgeon of Simla West during the absence on one month's leave of Lieutenant-Colonel C. H. James, C.I.E. Lieutenant-Colonel W. E. Jennings has been appointed Health Officer of the Port of Bombay City.

Major A. M. Fleming has been appointed Civil Surgeon at Jubbulpore on return to duty from leave of absence. Major W. L. Long has been appointed District Medical Officer at Coimbatore. Major W. M. Houston has taken up duty as Officiating Civil Surgeon at Belgaum. Major H. Hooton has been appointed in charge of West Hospital at Rajkot and Medical Officer to the Kathiawar Political Agency. Major F. S. C. Thomson has been appointed substantively to the Jail Department in Bengal Presidency.

Captain H. G. Stiles Webb, deputy sanitary commissioner in the Punjab, has been appointed Chief Malaria Medical Officer, Punjab, in succession to Major E. L. Perry, who has been granted leave of absence. Captain A. W. Howlett has been appointed to officiate as Superintendent of the Central Prison at Bareilly in succession to Captain W. P. G. Williams. Captain J. H. Murray has taken up duty as Senior Medical Officer at Port Blair during the absence on eight months' leave of Major J. Wooley. Captain H. M. Brown has been appointed to the Sanitary Department in Bihar. Captain W. D. Keyworth has been appointed to be Medical Officer of the 12th Regiment of Pioneers. Captain H. C. Buckley, officiating civil surgeon at Basti, has been transferred to Muttra for duty. Captain E. C. Hepper, civil surgeon at Bahraich, has been granted privilege leave of absence home from India combined with study leave for two years.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Francis Olive Laird Moore to be Lieutenant (on probation) (dated April 22nd, 1913).

TERRITORIAL FORCE.

Royal Army Medical Corps.

15th (County of London) Battalion, The London Regiment (Prince of Wales's Own, Civil Service Rifles): Surgeon-Major Thomas H. Dickson resigns his commission.

2nd London (City of London) Field Ambulance, Royal Army Medical Corps: Captain Edwin C. Montgomery-Smith to be Major (dated Nov. 14th, 1912).

2nd Lowland Field Ambulance, Royal Army Medical Corps: Captain Matthew Dunning to be Major (dated April 5th, 1913).

3rd Lowland Field Ambulance, Royal Army Medical Corps: Andrew Johnstone Brown to be Lieutenant (dated April 10th, 1913).

1st North Midland Field Ambulance, Royal Army Medical Corps: Lieutenant Henry G. W. Dawson to be Captain (dated April 7th, 1913).

1st London (City of London) General Hospital, Royal Army Medical Corps: Major Walter A. Atkinson to be Lieutenant-Colonel (dated March 17th, 1913). Quartermaster and Honorary Captain Henry E. L. Purcell is granted the honorary rank of Major (dated April 16th, 1913).

Attached to Units other than Medical Units.—Lieutenant James Nicol to be Captain (dated April 1st, 1908). Surgeon-Lieutenant Ellerington Reed Turner, from the 6th (Banff and Donside) Battalion, the Gordon Highlanders, to be Captain (dated April 1st, 1908). Lieutenant Andrew B. Murray to be Captain (dated Dec. 5th, 1912). Lieutenant John W. Pridmore to be Captain (dated March 21st, 1913). James Alexander Stephen to be Lieutenant (dated April 16th, 1913). Alexander Stuart Murray MacGregor to be Lieutenant (dated April 25th, 1913).

The undermentioned officers resign their commissions (dated May 10th, 1913):—Lieutenant-Colonel and Honorary Surgeon-Colonel Francis J. Walker, who is granted permission to retain his rank and to wear the prescribed uniform. Major William Roxburgh, who is granted permission to retain his rank and to wear the prescribed uniform.

TERRITORIAL FORCE RESERVE.

Army Medical Service.

Colonel Richard Harman Luce, late Assistant Director Medical Services, North Midland Territorial Division, to be Colonel (dated May 10th, 1913).

THE ORDER OF THE MEDJIDIEH.

Captain R. G. Archibald, R.A.M.C., has been permitted to accept and wear the decoration of the Imperial Ottoman Order of the Medjidieh (Fourth Class) conferred on him by H.H. the Khedive of Egypt in recognition of valuable public services.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—Mr. F. C. Danson, J.P., has been appointed chairman of the Liverpool School of Tropical Medicine, in succession to Sir William Lever, who recently resigned owing to pressure of private business. Mr. Danson, who has been connected with the school almost from its beginning, was vice-chairman, a position which is now occupied by Dr. Richard Caton.

Correspondence.

"Audi alteram partem."

THE PSYCHOLOGY OF THE MILITANT SUFFRAGETTE.

To the Editor of THE LANCET.

SIR,—I do not propose to consider the question of the propriety of extending the parliamentary franchise to women; my object is to arrive at a conclusion on the mental state of those women who commit acts of violence in opposition to the law of the country.

Many people who see that women commit arson, manufacture and use bombs, break windows, and starve themselves for the sake of the idea that by so doing they will get what they want, come to the conclusion that these persons must be insane because lunatics may act in the same way. The inference is illogical, because the acts of the insane, similar though they may be in kind to those of the militant suffragettes, spring from a different class of motive (as a rule), and though the working-out into action is the same, whether the idea be a sane or an insane one, it is the nature of the motive which makes the difference. There are amongst the large body of suffragettes many who happen to be insane or weak-minded—I have seen them—but the same statement applies to all other sections of people, it is an accident and is not a necessary cause of the conduct in question. The actions of the insane are the impulsive or the deliberate working out of their false ideas, and the result generally shows the invalidity of the motive, but the militant suffragette has in many particulars justified her actions. She has gone on hunger-strike and has been successful in procuring the abandonment of artificial feeding and in getting the term of her imprisonment shortened, and by her polemic measures she has made many think that the best way of pacifying her is by treating her as a naughty child and giving her all she wants. There is no evidence of insanity in this—on the contrary, it has all the characteristics of very sane procedure. Nor does it help us to say that if not actually insane they are, at any rate, the victims of hysteria. I have endeavoured elsewhere (Ex Cathedrâ Essays) to show that in hysteria "there is an organic change at the root of the condition, defective or perverted action of the higher nervous and mental states," and though some may be in this condition by accident it is by no means a necessary explanation of the acts of these women who are neither insane nor hysterical. These actions, however they may be condemned as inimical to the sense and feeling of the general community, are not, *quâ* actions, wrong; they are but the correct interpretation of certain central conditions, and it is these latter to which attention must be turned.

Few people know the importance of feeling in volitional acts, but it is, as a fact, one of the most important essentials; and both feeling and emotion are strongly developed elements of the female mind. So is mono-ideism, or the concentration of consciousness on some subject carrying with it a very strong emotional tone, such as, in its extreme development, is seen in the state called ecstasy, which, though a rare, is not an insane, condition. In an elaborate argument Wundt shows that *personal character* is the ultimate cause of volition, and that the connexion between motive and volition is uncertain because of the existence of this personal factor, the manner of whose coöperation with external factors is unknown. The real nature of personality is a riddle. What causes women to commit these voluntary and impulsive (also to some extent voluntary) actions is their personal factor, their character; and of the proper nature of this character men are comparatively ignorant, just as women have shown themselves ignorant of the character of men. Up to recent times our knowledge of the real character of women was very imperfect—it is still far from complete, and it never will be absolutely full; but recent events have made it clear that the personal factor contains elements of an intensity and range hitherto unappreciated, and we have been astonished at what has been seen, though still allowing that further developments of action will probably widen our knowledge. And just as men have under-estimated the emotional strength and intensity of concentrated ideism in women, so have women been—and still are—mistaken in their estimate of the character of men. Until it is evident to them that their efforts to obtain what they want by violent means are ineffectual they will pursue their present tactics. When they find that men are not to be beaten into compliance they will stop their futile practices, not before. Meanwhile, as long as the present attitude of the male element lasts the war of the sexes must continue. Individual men are found to justify the action of the militants, but they are neither strong nor numerous enough to influence the personality of the majority. Whether eventually the oscillations of thought of the community will change or turn is a question of the future. The militants have just as much right to think the male elements insane for not granting their (to them) reasonable views, as the men have to make the charge of insanity against women for acting in a way which denotes obstinate ignorance and nothing more.

Up to recent times women were said to be "better" than men—morally that is. It now appears that there is not so much virtuous difference as they were credited with, for we are having practical displays of revenge, spite, and all the embodiments of what is generally called "devilry." Women have from time to time shown how far strong emotion will lead them, and to what actions concentration upon a single idea (with its accompanying emotional tone) will commit them, but men did not recognise how general throughout the sex was this mental trend. Now that we do recognise it we are surprised at nothing they do nor at their ingenuity in devising fresh modes of irritation. Personal character is the true cause of volition, it acts of necessity, whereas motives may or may not determine volition; and so some suffragettes are prompted to militancy, others are not, according to the development of this personal factor.

Prison discipline. forcible feeding, &c., will not alter the personal factor in women (which is founded on innate strong feeling) because they perceive that the male governing body is not competent to carry out its programme to its ultimate consequences—i.e., to let them starve and die—and therefore the hope still remains that in the long run they will win. And so the contest will go on until one side or the other is tired of fighting, until the personal factor is changed and the individual will becomes the general will.

Crime is often due to mistakes on the part of the individual; he pits his cleverness against that of the community, and he takes every possible care that he may not be found out. For a time he may be successful, and so he goes on until he finds that society is too clever for him, and therein lies his original mistake; he is caught and imprisoned. The militant suffragette is much the same. Her crime is founded on her non-comprehension that men do not intend to give her what she wants; but when she is found out in her criminal acts and is sent to prison she discovers that by a strong display of personal character in refusing food and enduring the resultant bad health she obtains her discharge, so that punishment only confirms her idea that the remedy for her wrongs is in her own hands, and that she will ultimately compel men to change their personal factor as it stands at present. Herein lies her mistake in all probability. Anyhow, the tactics of these recalcitrant women have given a rude shock to the belief in the irrevocability of criminal sentences, and one wonders what will happen if men copy the women in their abstention from food and drink. Would they have the same consideration shown to them, or would they be allowed to die in the obscurity of unadvertised and neglected confinement?

I am, Sir, yours faithfully,

Weymouth-street, W., May 7th, 1913. T. CLAYE SHAW.

ETHER IN THE TROPICS.

To the Editor of THE LANCET.

SIR,—In reference to the Annotation on this subject on page 1258 of your issue of May 3rd it may be of interest to recall that during the campaign in the Eastern Soudan in 1885 ether was used for all operations in the Suakin Field Force. I was appointed anæsthetist to that force, and I think I only used chloroform in one case, and that only to induce anæsthesia, which was then kept up with ether. The air-temperature was over 100° F., and sometimes over 120° F. in the shade. I had no untoward results. A fairly large

amount of ether was required to produce anæsthesia, and a large quantity was wasted by evaporation, but it proved a most satisfactory anæsthetic.

I am, Sir, yours faithfully,

Harley-street, W., May 7th, 1913. J. EDWARD SQUIRE.

THE PROTECTION AFFORDED BY VACCINATION.

To the Editor of THE LANCET.

SIR,—To those who take an interest in the subject of grade of protection afforded by vaccination as discussed in your leading article of May 3rd (referring to Dr. Hanna's recent work on "Studies in Small-pox and Vaccination") the following statistics may be of some curious though but little scientific utility in contrasting protection from natural small-pox, as well as resistance to vaccination, in those who have undergone inoculation with small-pox virus and natural small-pox, respectively. The subjects were chiefly prisoners, and, therefore, inoculation marks could be conveniently verified by me. They included Shans, Burmese, Chinese, and a few members of the hill tribes of Vizagapatam: (*a*) In a group of 380 adults who had been inoculated when below 15 years of age, 5·6 per cent., and in a group of 94 who had been inoculated above that age, 3·2 per cent. had been attacked in after-life by natural small-pox. (*b*) 312 persons who had been inoculated below 15 years of age gave a vaccination success rate of 80·3 per cent.; 22 persons inoculated above 15 years of age gave a vaccination success rate of 81·8 per cent. (*c*) In 96 adults who had suffered from natural small-pox at various ages to an extent sufficient to be freely marked, and who, as Sepoys, had therefore been enlisted without vaccination, I obtained a vaccination success rate of 75 per cent. Varioln-vaccine stock was used.

In judging of the high rate of attack by small-pox of the inoculated, it must be remembered their exposure to infection, probably, was very great at certain seasons when inoculation was performed broadcast in the absence of any precautionary measures. Thus, before vaccination had made its influence felt, it is reported that in Calcutta 23 per cent. of total deaths amongst Hindus was due to small-pox. But the point of interest in item (*a*) seems to me—if the inequality of the groups be ignored—that as with vaccination so with inoculation, repetition of the protective operation at puberty was advisable.

I am, Sir, yours faithfully,

W. G. KING

May 5th, 1913. (Col., I.M.S., ret.).

THE PHYSIOLOGY OF THE OPEN-AIR TREATMENT.

To the Editor of THE LANCET.

SIR,—The profession and public are deeply indebted to Professor Leonard E. Hill for his Brompton Hospital lecture. I number myself amongst those who I am sure will accept his general conclusions without demur. Practitioners who have spent much of their life in the tropics and subtropics must assent at once to the view that atmospheric temperature, moisture, and stillness are much more injurious than chemical impurity. Have we not seen develop in those who spend their whole time in the open air the identical train of symptoms that are common in the urban populations of the British Isles? And have we not noted the almost miraculous influence of a short sea trip or a short change to a cooler, drier, and more breezy climate? Still, moist, and tepid air acts in innumerable ways to reduce the tone of the system (I know no better expression). Though rarely insisted on, one of the commonest and important effects is aversion from animal food. And since flesh foods are practically our only source of digestible and assimilable protein, a high percentage of those who live in the tropics suffer from chronic protein starvation. Here sex is a determining factor. Though difficult of explanation, the fact remains that it is almost solely women who avoid meat in the tropics. Hence it is mainly women who suffer from the climate. Let anyone take a comprehensive survey of the white population in a tropical port, and the difference in the health of the sexes will at once strike him. The men, though working through the day in hot and stuffy offices and often far from abstainers from alcohol, preserve for the most part a fair amount of health and strength. The women, though they may have little to do but look after their own comfort, and though certainly more temperate than their men folk, tend to lose, after a few years, all strength, energy, and enjoyment of life, and spend most of their time on a long verandah chair. Perhaps their most obvious symptom is their appearance of age; many women of 25, suffering from no definite ailment, look quite 40. Inquiry shows that they live almost entirely on bread and butter, tea, and fruit; hence nitrogen starvation. Treatment in such cases is always extremely satisfactory, provided only that the physician succeeds in overcoming the patient's distaste for meat. Now and then there is found to be no such distaste. The patient had always understood that meat was an improper food in hot weather. Is it not time that this view, for which there has never been any scientific basis, was abandoned?

I should like, however, to raise a point. As I understand him, Professor Hill describes the success of the open-air treatment in consumption to a general increase of metabolism. Metabolism, of course, includes anabolism and katabolism; but, unfortunately, the inclusive term is often used to denote katabolism only. Does Professor Hill use the term metabolism deliberately in order to include both the constructive and destructive varieties, or does he refer chiefly to katabolism? If the latter, then it is a little difficult to understand the value of the open-air treatment, at any rate, in consumption. For of this disease, Robin and Binet say: "While respiratory capacity is diminished, the total pulmonary ventilation is enormously increased, the CO_2 production increasing upwards of 60 per cent., and the total amount of oxygen used increasing by some 70 per cent., while the quantity of oxygen absorbed by the tissues is sometimes increased 90 per cent. Consumption then is the correct word: the disease is an active consuming process.[1]"

I am, Sir, yours faithfully,

Beckenham Park, Kent, May 12th, 1913. FRANCIS HARE.

CHAMPAGNE INJECTIONS IN SURGICAL SHOCK.

To the Editor of THE LANCET.

SIR,—I should be much obliged if you will kindly allow me to invite attention to the great value of a subcutaneous injection of good dry champagne in cases of vaso-motor depression following serious operations. The effect is as immediate as it is remarkable: the pulse improves in volume, the skin becomes warm, the clammy sweating ceases, the patient wakes up, and frequently within an hour tranquil sleep supervenes. As far as we have seen in the British Hospital no "reactionary" depression follows.

For years past we have largely employed saline injections, strychnine, camphorated oil, &c., but have found that nothing seems to "lift up" the patient like champagne. The following is the method employed. A small bottle of champagne, which contains some 400 grammes, is poured into an ordinary 500-gramme serum bottle and normal saline solution (100 grammes) added. This is injected in the usual manner into subcutaneous tissues. There is no subsequent local irritation or discomfort complained of, and the injection is repeated in six hours if the condition demands it. If a prompt evacuation of the bowels is considered expedient an injection of pituitary extract is given, and if necessary repeated in three hours. Champagne and pituitary extract is a combination that I can strongly recommend.

I should also like to invite the attention of physicians to this method of employing what I consider the most natural, the best, and most rapidly diffusible stimulant given to mankind in certain cases of pneumonia, influenza, &c., in which there is marked vaso-motor depression. And it may not be out of place to remark that we have formed a very high opinion of the tonic value of the daily administration of half a bottle of the best dry champagne during early convalescence of cases of severe toxæmia.

I am, Sir, yours faithfully,

JOHN O'CONOR, M.A., M.D., T.C.D.,
Senior Medical Officer, British Hospital, Buenos Aires.

April 19th, 1913.

[1] Progressive Medicine, September, 1902, p. 51.

MEDICINE AND PSYCHOLOGY.

To the Editor of THE LANCET.

SIR,—Certain aspects of modern psychology have been presented in your columns recently.

May I draw attention to the following? In Dr. W. McDougall's lucid introduction to Psychology in the Home University Library he defines psychology as "the positive science of the behaviour of living things. To accept this definition is to return to the standpoint of Aristotle, and to set out from generally recognised facts, unprejudiced by theories."

From the standpoint of this definition there is evidently a very wide field of investigation open to psychology to-day. And in considering some of the problems with which we in the medical profession are confronted there seems special need to maintain a balanced judgment as free from bias as possible. A hasty process of deduction can be of little use in this respect; and the slower and surer method of induction would appear to be more hopeful of fruitful results. To quote Bacon:—

> Man, being the servant and interpreter of Nature, can do and understand so much and so much only as he has observed in fact or in thought of the course of nature (de naturæ ordine re vel mente observaverit); beyond this he neither knows anything nor can do anything.—(Novum Organum: Aphorism 1.)

> It cannot be that axioms established by argumentation should avail for the discovery of new works; since the subtlety of nature is greater many times over than the subtlety of argument. But axioms duly and orderly formed from particulars easily discover the way to new particulars and thus render sciences active.—(Aphorism 24: Book I.)

And to carry the principle a step further—into the realm of psychotherapy—I cannot help thinking that its application will prove both illuminative and fruitful.

There is ample material at hand in practical results which have already been achieved in England, America, and on the Continent. And these results bear intimately upon general practice as well as upon some of its special departments.

> ..... Even if the breath of hope which blows on us from that New Continent were fainter than it is and harder to perceive; yet the trial (if we would not bear a spirit altogether abject) must by all means be made ..... there is hope enough and to spare, not only to make a bold man try, but also to make a sober-minded and wise man believe.—(Aphorism 114.)

I am, Sir, yours faithfully,

HERBERT SHORE.

Esmond-road, Bedford-park, W., May 11th, 1913.

NECROSIS IN ECLAMPSIA.

To the Editor of THE LANCET.

SIR,—I have read with much interest the paper by Professor R. Jardine and Dr. A. M. Kennedy[1] on symmetrical necrosis of the cortex of the kidney in eclampsia, and more particularly the two tentative conclusions of the latter—namely, that he is "inclined to the view that the cause of the necrosis in the kidneys is the same as that which causes the necrosis in the liver" and that "the thrombosis in the smaller cortical renal arteries is secondary to the necrosis of the cells." Dr. Kennedy then asks what it is that initiates the necrosis, and submits that it is some factor in the eclamptic toxin. I am very glad to agree with him, but hope that it may be possible to go a little further and to define this factor more closely.

My own observations on necrosis in eclampsia have been confined to the liver, where alone have I seen it. In previous communications[2] I have strongly urged that this necrosis is largely if not entirely due to hæmagglutinative thrombi—that is to say, to an actual occlusion of the vessels with massed red cells without the intervention of fibrin. That these occur in the livers of eclamptic cases has been demonstrated by Flexner, Welch, and myself. Further, Pearce has shown that an experimentally induced hæmagglutination is capable of causing a focal necrosis of liver cells, and has very clearly proved the interrelation of this hæmagglutinative with a hæmolytic element in the production or prevention of necrosis. The full references will be found in my papers quoted.

It appears that this hæmagglutination occurs most readily where the circulation is very slow, and although such thrombi have not to my knowledge been described experimentally in the kidney, still the site of the focal necrosis as given by all writers on this form of renal destruction is much in favour of such an origin. It would be extremely interesting and important to learn from Dr. Kennedy whether any appearances of this nature are to be seen in the third and earliest of the three cases now reported. In the microscopical report of one of the two livers examined Dr. Kennedy comments on the very great dilatation of the capillaries that was present. This may be similar to the extreme congestion noted by Pearce in his experimental work before the onset of necrosis.

In conclusion, I have to congratulate Professor Jardine on his unique experience of six cases of this very rare condition.

I am, Sir, yours faithfully,

H. LEITH MURRAY.

Liverpool, May 13th, 1913.

[1] THE LANCET, May 10th, 1913, p. 1291.

[2] Journal of Obstetrics and Gynecology of the British Empire, October, 1910. Ibid., February, 1913. British Medical Journal, January, 1911.

ARTIFICIAL PNEUMOTHORAX — AND AFTER? THE MECHANICAL FACTOR IN THE TREATMENT OF PHTHISIS PULMONALIS.

To the Editor of THE LANCET.

SIR,—In view of the organic change which within the past 12 months has radically modified the conditions of our professional existence, it is necessary to review our relation to the problem of consumption, which we are now under contract to cure. Henceforth not only have we a responsibility to pathology and therapeutics, we are responsible also to the State, which, now judge as well as paymaster, is an interested partner in our pathological and therapeutical problems, not alone financially, but under a conscience clause. It has undertaken the welfare of the population, hitherto from time immemorial under our sole charge, and it stands committed not to deny to any individual under the rates the genuine cure. We can no longer escape a categorical statement of the endorsable value of our therapeutical assets. Our pathology is monumental. How much longer must it remain ornamental? As to our therapy, having discarded for a while the entire pharmacopœia, we are reduced to a game of battledore and shuttlecock between syringe and sanatorium. It is enough for a fair critic that Batty Shaw is still unconvinced by the one while Wilkinson still distrusts the other. The sanatorium is at best a mere preventorium—opens its doors to every earliest case; yet how many are still discharged with progressive phthisis! Tuberculin scorns it, and bargains for "neither too late nor too early." Yet within that interval of its own selection it fails more often than not.

How much longer shall we wait for the authoritative jury which ought to decide between fact and opinion? Meanwhile, is it not time to resume our premicrobic consultations in the grotto, where Bodington left them, and to question Nature once more whether there might not be some other cure elsewhere? Forlanini had consulted her in 1882, just within the bacillary era, but eight years before bacteriotherapy had shed its elytra. "Is it to be excision or artificial pneumothorax"? The surgical proposition was pre-Listerian, and therefore problematic. The other was well supported by solid fact, ripe for discussion, but seemingly incapable of it in a microbic atmosphere, except by him alone; yet brilliantly acted upon in 1885 by W. Cayley, in England, so slow to follow up his pioneer operation, although Carson long before had laid an experimental foundation for it. Forlanini's non-bacillary, mechanical cure was a singular instance of a method arising *d'emblée*, the offspring of a master thought, in full panoply and ready for immediate action, but too heroic, too magnificent, for practical tactics, fraught with limiting risks greater than have yet been registered, and therefore bound to pass away as ineligible for the universal cure, yet imperishable in its teachings, which I venture to believe contain that cure. At the latest hour, when the profession, and in this country the State, are pressing for a decisive answer, it has cut the Gordian knot, and it now demonstrates to us that there is a cure elsewhere—the cure of Piorry (1833), the cure of Freund (1858), the cure of Forlanini (1882); and that that cure, though this had not been hitherto specified categorically nor yet perhaps thoroughly realised, is the mechanical cure.

The other mechanical alternative was yet more heroic, and yet it, too, has materialised clinically, as proved by the survival, for upwards of 16 years, of Macewen's patient after a total left pneumectomy; but we would fain be without the need for its help. Neither of these procedures can be regarded as final in practical phthisiotherapy. They are neither physiological in their dealings nor rational in their clinical time. The rational cure of phthisis lies at the other end, when the lung is still, for practical purposes, an almost intact physiological organ. Forlanini has brought us back again into touch with the main issue. Phthisis, like the rest of pathology, may be said to be disordered physiology; the curative means should be physiological, and their time the patient's physiological time—namely, "pre-bacillary" for prevention, and "earliest bacillary" for treatment. But for that end it is indispensable to recognise that in man, less susceptible than the guinea-pig, the trouble is even more mechanical than it is infective. On no account let us forget that "phthisis is an apex question": no apex lesion, no phthisis. This defines the proper place for our "phthisis-surgery" in the future therapy. All surgery is mechanical, though not all surgery is operative.

But here I must interrupt, for a few days, these bare statements, in view of their further elucidation and of their partial justification, perhaps, at the Polyclinic; and merely submit, in conclusion, that the cure of "phthisis" ought to be in large measure mechanical, because that disease, *pace* the bacillus of "tuberculosis," is itself, in its origin and progress, largely mechanical.

The wonder is that Freund's principle should have so long shared the complete neglect allotted to his practical suggestions and should never have been worked at by non-operative means. His "operative" orthopædic phthisis-surgery has been practically ignored. It may eventually appear to have been superfluous, if we can only succeed in showing that, were they to be resorted to at the proper time, mechanical apex orthopædics might prove to be one of our best insurances against the danger of pulmonary tuberculosis and the disaster of phthisis.

I am, Sir, yours faithfully,

Upper Brook-street, W., May 12th, 1913. WILLIAM EWART.

THE INTERPRETATION OF LYMPHOID AND LYMPHATIC INVOLVEMENT IN THE TUBERCULOSIS OF CHILDHOOD.

To the Editor of THE LANCET.

SIR,—The statistical notes on the pathology of tuberculosis in infancy and childhood by Dr. C. F. Lapage and Dr. W. Mair, which appeared in THE LANCET of April 5th (p. 959), are of very great interest, illustrating as they do the conspicuously frequent involvement of the lymphatic glands in this common infection among civilised communities. In 11 cases alone, out of 165, was glandular involvement not discoverable. It would be interesting to know whether the tonsils were involved in these 11 cases. It may be presumed with safety that this was probably the case in all the 11, and that some of them had adenoids that had been successfully dealt with by laryngologists. Under "glandular tuberculosis" the authors, after referring to the frequency with which certain groups of glands become "infected," state: "The above figures show that disease of either group of glands may occur without lesion of the area drained by them"; and further, "It must be pointed out that tubercle bacilli may pass through a healthy or a slightly damaged mucous membrane without leaving any trace of their entry and yet infect the lymph nodes."

The questions that arise are—(1) By what manner of means do the bacilli effect an entrance through the epithelial cells? (2) what is the true physiological relationship between any gland or "node" and the corresponding epithelial area that is drained by it?—i.e., by the delta-like formations of lymphatic capillary radicles which unite to form the duct shafts leading into the hilus of the gland.

Judging from the morphological structure of the tubercle bacillus, it has no intrinsic powers of motility or penetration, as appears to be the case with the protozoon flagellates, or the spirochætæ, for example. It does not possess any proteolytic or histolytic properties, such as the entamœba histolytica is known to have on the protoplasm of living epithelial cells. As a matter of fact, apart from its toxic properties, the tubercle bacillus may be looked upon as relatively inert. Its entrance into the lymphatic capillaries and along them by the duct shaft to the hilus of the lymphatic gland must be effected by some other physiological means. It must, therefore, enter in the same way as inert particles of matter which arrive at the glands and find lodgment there, as in anthracosis, silicosis, and when pigment particles are applied experimentally to the mucous surface. Now, the nature and extent of the submucous lymphatic capillary reticulum is such that its mesh corresponds to the superimposed epithelial cells, which would be interposed between the bacilli and this surpassingly tenuous vascular system. For various reasons, the flow within them is such as not to create aspiratory suction sufficient to attract inert particles to admit them by "diffusion." The biochemical mechanisms that exist in such situations in connexion with indiffusible and "unanalysable" particles which happen to be too small to become incorporated with the excreta are: 1. The highly cytogenous solitary or lymphoid gland, immediately beneath the reticulum; it gives rise to clouds of microcytes *in situ*, which on emergence on to the surface hydrolyse to form mucus. 2. When this fails to effect its object—i.e., excretion—the lymphatic gland correlated to that particular area gives rise to clouds of large mononuclear leucocytes that swarm by chemiotaxis to that particular area. In transit through various densities of tissues they become variously polymorphic. These perform phagocytosis on such matter as is adherent, and not removed by the mucus on the epithelial surface, *without any damage caused by their emergence* between those cells. This is followed by their re-entry, similarly beneath the mucous membrane. They are laden with particles and bacilli which are partially digested. The phagocytic function is not complete until the cytolysed products of these leucocytes arrive at the hilus of the gland in order that the germinal matrix which surrounds the hilus may be first sensitised. The succeeding generations of leucocytes are thus immunised. Cytolysis of the phagocytes proceeds after they have entered the lymphatic capillaries and ducts from the surface. They effect entrance when laden with bacilli and particles by their inherent powers of motility and penetration. Further digestive elaboration is carried out in the valved chambers of the duct shaft; the products are propelled in one direction only—to the hilus of the gland. There being no excretory outlet from the gland, except by diffusion, indiffusible particles come to be lodged and are found therein.

The occasional failure of the bacillus-laden phagocytes to enter the lymphatic capillaries is manifested by a lymphangitis, which is in effect a pure metastasis—i.e., the partially digested bacilli are extruded outside and along the duct shaft outlining it. This is to be commonly observed through the skin of the forearm of fair-skinned people, and I am not aware that it has ever been adequately interpreted. The 800 or more lymphatic glands are admittedly *not interposed in the arterio-venous circulation*, like the spleen and bone-marrow, therefore the leucocytes to which they give rise are not delivered into the blood stream. Indeed, these active cells are quite independent of such channels for their transport. They certainly pertain more to the lymph than they do to the blood. Briefly, these constitute the links in the chain of bio-chemical mechanisms which tend to the acquirement of immunity, and the breaks in the chain underlie pathological processes. These views are likely to be appreciated by Metchnikoff.

I am, Sir, yours faithfully,

Harley-street, W., May 8th, 1913. H. D. MCCULLOCH.

INSANITY AND DIVORCE.

To the Editor of THE LANCET.

SIR,—The letter of Dr. Batty Tuke, junior, in your issue of May 3rd says: "Why should insanity be pilloried as a ground for divorce more than any other form of incurable illness, which is not directly due to evil living?" He reminds me of Lewis Carroll's book in which the mouse is telling a story of three little girls who lived at the bottom of a well and interested themselves by spelling every word that began with an "m"; and Alice asked, "Why with an 'm'?" and the reply was, "Why not?" Insanity is brought forward

as a ground for divorce, not as a punishment, but in the interests of the sane spouse and children and countless generations to come. It matters not whether it was or was not the lunatic's fault that he is insane; in either case it is deplorable, and should evoke our deepest sympathy for everybody concerned; but we have to consider the spouse and family thus bereft of an important member and the illimitable suffering of future generations.

I am, Sir, yours faithfully,

A. HAMILTON,
Organising Secretary, Divorce Law Reform Union.
8t. James-street, Piccadilly W., May 6th, 1913.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—You kindly published recently a letter from the National Medical Guild in which attention was called to the fact that treatment by quacks, herbalists, and others was being permitted under the "own arrangements" clause of the National Insurance Act. May we be further permitted to state that the London Insurance Committee is prepared (on the evidence of its chairman given in the House of Commons recently) to allow arrangements to be made with "homœopaths and herbalists," and this in spite of the fact that Form 43 I.C., on which application to make "own arrangements" must be made, contains the statement that "the Committee will also require to be satisfied that the treatment obtained will be of a nature, quality, and extent not inferior to that obtained under the panel system."

The Parliamentary representative of the Insurance Commissioners—namely, Mr. Masterman—has made it clear that the matter is one for the discretion of the Committees, and one which he did not feel disposed to take up. Seeing that this has been a bone of contention in Germany and other continental countries, it is well that the profession in England should take the matter in hand as early as possible, and the first step to this is to understand it fully. We would therefore ask you to be so good as to give publicity to this letter. I am, Sir, yours faithfully,

GORDON R. WARD
(for the National Medical Guild).
34, Villiers-street, W.C., May 6th, 1913.

MEDICAL DEFENCE UNION.—The annual general meeting of the Union will be held on May 29th, at 4 P.M., at New London Hotel, Exeter, when the usual statutory resolutions will be placed before the members, together with the annual report and balance sheet.

SWANSEA HOSPITAL.—The accommodation at the Swansea General and Eye Hospital has been materially increased by the completion of a new block which was opened on May 3rd by Lady Mond. The building is three storeys high, and on the ground floor there are a new dispensary and waiting-rooms and a large waiting hall, leading out of which are four casualty wards, dressing-rooms, bathrooms, and a porter's room. On the first floor are a 12-bed ward, to be called the Patti Ward, and a two-bed ward, the cost and maintenance of which are being borne by Mr. Roger Beck. On the second floor there is accommodation for 14 patients. On each of the two upper floors are nurses' kitchens, bathrooms, &c. The cost of this block is about £13,000, and is the first instalment of a general scheme of enlargement decided upon in 1911, which it was estimated would entail an expenditure of £30,000. A legacy of £10,000 has justified the immediate building of wards to accommodate 24 patients, when there will only remain the construction of additional wards in existing buildings for 32 patients. The hospital was established as long ago as 1817, but the first portion of the present buildings was opened in 1869. Among the first subscribers was Miss Florence Nightingale who advised the promoters in the arrangement of the institution. In 1876 a second wing was completed, when the accommodation was raised to 130 beds. In 1889 the special eye department was provided, and other additions have been made from time to time, including an operating theatre. That the present extension is necessary there can be little doubt, for the population of Swansea has increased from 70,000 in 1879 to 115,000 at the present time.

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(BY OUR SPECIAL COMMISSIONER.)

(*Continued from p. 1370.*)

IX.—RURAL PRACTICE IN SCOTLAND.

How the Act Assists the Well-to-do Resident.

MILNGAVIE, a village on the outskirts of Glasgow, with an estimated population of 3481 persons, is in the centre of farm-land. I went there to see how the Act worked in what was represented to me as being a typical rural centre, and found three similar districts adjoining each other with seven practitioners between them. All seven practitioners are on the panel, and their work overlaps. They are, I was informed, on the panel not from choice but from necessity. It was, they considered, their only course in the circumstance in which they were placed. They were too near to Glasgow, where there might be a large supply of medical men from whom assistance could have been obtained by the Local Committee if they had attempted any strenuous resistance. Moreover, they felt that they did not know how the new Act would work. Thus a practitioner at Bearsden, one of the three districts, did not imagine he would have more than a dozen or two insured persons on his list. To his great surprise he found something like 500 names; yet this is a purely residential district, where everyone hitherto had paid the usual fees and there had been no clubs and no contract work. In such a neighbourhood it did not seem possible that 500 persons would be insured under the Act, and that no less than that number should appear on one practitioner's list was entirely contrary to expectation. It was soon apparent that these insured persons were youths and young women, the grown-up children of his well-to-do patients, who were occupied as office boys, clerks, or typists in their father's business or in the businesses of friends. Formerly, if any of these young folk fell ill, their parents paid full fees for medical attendance. Now they are all insured, and the question is whether the 500 yearly payments will represent a larger sum than the occasional but full fees formerly received. This is a matter that concerns the nation as well as the patients and their medical attendants. It means that the community, by its representative the State, is now paying 2*d.* a week towards the cost of sick allowance, medicine, and medical attendance for the children of well-to-do families, who formerly met the whole of this outlay out of their own private resources. In the past such a call on their purses was considered no hardship, and the question arises whether it is right to tax the whole community so as to provide 2*d.* a week for each of these sons and daughters of well-to-do families. Though this matter was brought to my notice in regard to the residential district of Bearsden it applies to the country at large. I am sure that the same point must arise in many districts, and when in the course of my tour my attention is again brought to it I shall be able to deal with it in a few words, and avoid needless repetitions, if I refer my readers to the conditions at Bearsden.

How the Act Assists the Farmer.

It is not only the children of prosperous business men who profit by the Act to get a State contribution in the event of illness. At the other end of the social scale the agricultural labourers are also adding to public expenditure. Undoubtedly if the State should aid individuals to insure against sickness none are more deserving of such assistance than agricultural labourers. But the matter does not work out exactly in this way. It is the farmer who receives State aid, and however much the British farmer may require State subsidy in his present somewhat anxious position, it was not the intention of the National Insurance Act to afford it. In Scotland there has been so much emigration that agricultural labour is hard to obtain, and the wages paid are much higher than in England. A labourer easily obtains 15*s.* a week besides his board and lodging on the farm, and hitherto medical attendance has been included. The farmer paid for the medical attendance upon his men, and not only paid full fees, but, if he sold milk, he very frequently sent for the doctor. It is absolutely necessary that the farmer should guard himself from the risk of

spreading fever through selling infected milk, therefore the dairy farmer regularly sought medical advice in regard to the men that were working for him, and full fees, in which distance was considered, were paid. Now this is all altered. The farm labourers have become insured persons. These labourers are not better off in regard to medical attendance than before, but, together with the State, they have to pay a part of the cost, while formerly the farmer paid the whole cost. Thus the Act becomes a measure to relieve the employers who used to pay for the medical attendance of those they employed. Some employers paid very liberally, but now there is no natural opening for individual generosity, and also medical service is paid for in terms of the National Insurance Act. At Milngavie one practitioner related to me that some of the surrounding county families might have as many as ten indoor servants, and that he had often received his fee of half a guinea per visit for attending one of these servants. Now they were all insured persons and this had not reduced the amount of sickness prevalent nor the number of times that he was summoned. In one wealthy household he had among the servants a case of influenza, in another one of measles, and had paid one patient four, and the other eight visits, and had not finished with them yet. He could not but think that the half guinea per visit under the old system would be found to pay him better than the 7*s.* a year under the new dispensation, though, of course, a year's accounts will be required before this point can be settled for certain.

Reduction of Income through the Act.

There is a great difference between an urban and a rural practice, and this difference, which has grown of late so as to be patent to all, has been accentuated by the Act as it works in Scotland. For example, "The rural practitioner cannot send minor operation cases to the hospitals of the nearest town," remarked one of the Milngavie doctors; "we perform the operations ourselves." He told me that he had a patient with a fracture who at present needed constant attendance. This was a youth who lived in a villa, and formerly, when he required medical attendance, a fee of 3*s.* per visit was paid; now the youth was an insured person. He informed me also that just as the Act came into force he had a case of pneumonia and was obliged to visit the patient twice a day. This meant travelling 12 miles every day to attend to one single insured person. Then he had two operations to perform and an urgency case which compelled him to hire a carriage. Further, a patient suffering from epilepsy had been dismissed from a neighbouring asylum since the Act came in force, and had now become an anxious charge upon the panel doctor. There was one person whose name appeared on my informant's list whom he had a great mind to refuse as a patient, he told me. This was a young girl who received 10*s.* a week pocket money from a well-to-do father. On the plea that she had been typing business letters this girl was insured as an employed person. But she was not keeping herself and she was not poor. He did accept the shrewd young person as a panel patient, but it is clear that the Act was not intended to operate for the benefit of persons in this fortunate position. He attended also some former parish patients, but believed that this would not relieve the Poor-rates, as the 10*s.* sick allowance in many cases did not suffice, and insured persons would still apply for poor relief. Again, they had no institution for the treatment of tuberculosis, there was no place where sputum could be examined—everything was left to the panel doctor and his own unaided devices. Altogether, and looking over his books, the first Milngavie practitioner on whom I called found that since Jan. 15th, when the Act came in force, he had attended on an average a fraction over nine insured patients per day. This, multiplied by the 365 days of the year, would make 3285 consultations per annum. Looking carefully over his accounts, making due allowance for bad debts and gratuitous work, he concluded that he used to receive 2*s.*, on an average, for every consultation. If, therefore, and according to the above calculation, he will have to give advice 3285 times during the year he should receive £328; but as he has only 700 insured persons on his list he would not receive more than £240. This seemed like a net loss of £88, or nearly a quarter of his income. Instead of 2*s.* he now expects to receive about 1*s.* 5*d.* per attendance, and this is to cover everything—night visits, minor operations, and very long distances to travel. According to the above figures, we have the interesting fact that each insured person requires an average of close upon 4·7 attendances per annum.

Differences between Rural and Town Practice.

The differences between rural and town practice to which I have alluded will have to be dealt with in a serious spirit. Complaints were made to me that the Medical Committee at Glasgow could not be induced to take any interest in the position of the surrounding country doctors. It was felt by the latter that the Act might prove advantageous in towns where practitioners are able in the ordinary pursuit of their business to see many patients within a small radius. But in the country to see two patients, living in opposite directions, it was sometimes necessary to travel 10 or 12 miles without a mileage allowance. Then as the rural practitioners did more operating than town practitioners this meant devoting more time to some of the patients. With regard to the number of patients whom the doctors on the panels in crowded towns are expected or prepared to treat, one of the Milngavie practitioners with whom I conversed said that he could not understand how his town colleagues managed to see scores of patients in an hour or two. It was not right, he thought, to attempt to diagnose so quickly as was thus implied. Even the traditional 15 minutes was often insufficient to settle the nature of a case. Whether in town or country it is clear that where the Act has compelled practitioners to do their work too rapidly it must inevitably lower the tone of the medical profession.

I found the question of malingering had been very carefully considered, and a view, new to me, was put forward, that it was beneath the dignity of the medical man to act as "Government or Inland Revenue spies" by denouncing cases of malingering. Any special activity in this line I was also informed would soon render the panel doctor unpopular, he would do no good, and lose his patients. Besides, it was felt to be a very unsafe thing to treat a patient as a malingerer save upon the most unmistakeable evidence. The past history of the patient is probably the best guide to a decision in ordinary cases of malingering, but it is doubtful whether panel practice is likely to provide many opportunities for going into these details.

Resentment against the Act.

All the practitioners complained about the question of mileage. One among them explained that he had to go 15 miles in a day without any extra allowance. Formerly there were a few Foresters and Gardeners. The members of these Friendly Societies only paid 3*s.* 6*d.* per annum, and this included medicine. Now, as insured persons, 7*s.* were paid on their behalf, and medicine was not included. Undoubtedly this was a great improvement, but the old club patients either lived in the village itself, or if they lived at a distance they paid the usual fees. It is true the panel doctor is allowed to dispense drugs to distant patients and then receives 8*s.* 6*d.* a year instead of 7*s.*; but this difference is not enough to pay for the long journeys. Then they were constantly obliged to perform minor operations for nothing, and there was no allowance for chloroform. The majority of the neighbouring practitioners were opposed to the Act and did not go on the panel till the very last minute. Being imbued with antagonism and resentment, they have not the right feeling towards their patients, and this cannot but affect the practice. As one of them explained, they were coerced to go on the panel; they were threatened with the importation of doctors. Thus, the panel doctors feel they are acting under compulsion. They try, nevertheless, to make no difference between private patients and insured persons, but this is often materially impossible if for no other reason than the want of time.

(*To be continued.*)

GLASGOW UNIVERSITY CLUB, LONDON.—The summer dinner of this club will be held at the Trocadero Restaurant, Piccadilly-circus, W., on Friday, May 30th, at 7.15 for 7.30 o'clock. The Right Hon. Augustine Birrell, K.C., M.P., Lord Rector of the University, will take the chair. Members intending to be present or to bring guests should give early notice to the honorary secretaries, Mr. W. Craig Henderson and Dr. David S. Roxburgh, 30, Seymour-street, London, W.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Health of the City.

THE report of the medical officer of health for the first quarter of this year states that the population of the city is estimated at 859,644, an increase of 8697 as compared with the first quarter of last year. The number of births was 5761, or 26·9 per 1000. There were 3544 deaths, equal to 16·5 per 1000, as compared with 16·2 last year. The death-rate, whilst only slightly higher than last year, was considerably higher than in 1910 and 1911, when it was 15·2 in the same quarter. There were 750 deaths of infants under one year old, about one-fifth of the whole number. On the other hand, there were 335 deaths of persons between 75 and 85, and 73 deaths over 85, including 1 death at 110 years. The following show the deaths from infectious diseases: enteric fever, 6; small-pox, 0; measles, 275; scarlet fever, 55; whooping-cough, 16; diphtheria, 44; pulmonary tuberculosis, 306; and other forms of tuberculosis, 64. The number of notifications received were: enteric fever, 25; scarlet fever, 1714; diphtheria, 219; erysipelas, 184; pulmonary tuberculosis, 1225; other forms of tuberculosis, 385; cerebro-spinal fever, 1; poliomyelitis, 1; puerperal fever, 24; and ophthalmia neonatorum, 54. Teachers in elementary schools reported 2672 cases of measles, 227 of whooping-cough, and 1347 cases of mumps. The number of cases of scarlet fever was exceptionally large, the nearest approach being 1389 in 1902, but both scarlet fever and measles showed a decline as compared with the last quarter of 1912.

The City Analyst's Report.

Last year 4136 samples were submitted for analysis, and of these 7·9 per cent. were found to be adulterated. Of 1616 samples of milk 4 contained boric acid, 6 saltpetre, and 132 contained added water or were deficient in fat, the percentage of adulteration being 8·2. Over 1000 samples of butter were examined, and 5·1 per cent. were found adulterated. With regard to margarine, the report observes that it is unfortunate the law does not require that each pound-roll of margarine when packed in a box should be marked "margarine." If this were so honest vendors could not make mistakes, and a further difficulty would be put in the way of dishonest ones. At present only the box is marked, so that a fraudulent vendor has only to take the rolls from the box and they are ready for sale as butter. Of 30 samples of aerated waters 17 were adulterated. Referring to non-alcoholic wines, the report relates that the inspector went into a shop and asked for "non-alcoholic wine." He received a bottle labelled "ginger wine" and another labelled "orange wine." He especially asked if they were non-alcoholic and was told that they were. Analysis showed that the ginger wine contained 11·8 per cent. of absolute alcohol and the orange wine 10·0 per cent. Of 143 samples of drugs 28 from 15 different vendors were found to be impure.

Medical Men and the Royal Army Medical Corps (T.).

At a meeting of the Warwickshire Territorial Association the difficulties in the way of medical men joining the Royal Army Medical Corps Units were considered, and it was resolved that representation should be made to the War Office. Apparently the demands upon the time of medical men who have joined the panel are so great that they are unable to give the time to ambulance work, and difficulty is arising in finding the number of officers required.

Health Week.

Much interest has been taken in the city in the health propaganda of the last week. Two large meetings were held in the town-hall. At the first the Lord Mayor presided, and a lecture was given by Dr. J. Robertson, the medical officer of health, on the "Better Birmingham of the Future," with special reference to its works and workers. The work of the health committee was described and the lines upon which future reforms should proceed. At the second meeting Alderman Fletcher, the chairman of the health committee, presided, and Mr. Gilbert Barling gave an address full of practical advice to workers upon the care of their health. Lectures were given every evening in various council schools, sermons were preached in most of the churches, and addresses were given in the adult schools and elsewhere. The adult schools are continuing their campaign against consumption, begun last summer when the Anti-Tuberculosis Exhibition visited Birmingham. It was realised that this exhibition, although attended by a very large number of people, did not reach many in the poorest parts of the city. The adult schools are, therefore, holding exhibitions on a smaller scale in the poorer quarters, and lectures are given by medical men and city councillors.

The Children's Hospital.

On April 23rd H.R.H Princess Louise, accompanied by the Duke of Argyll, laid the foundation stone of the new buildings and unveiled the statue of King Edward VII. The new hospital and statue form the King Edward VII. Memorial provided by public subscriptions. The sum subscribed was £32,808, and of this £2700 have been expended upon the statue. The total cost of the building and furnishing of the hospital is estimated at £62,000. The amount in the hands of the committee being £49,000, a further sum of £13,000 is required.

May 7th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Conference of Scottish School Medical Officers.

THIS conference took place in the Heriot-Watt College, Edinburgh, on May 1st and 2nd, Dr. Carstairs C. Douglas, principal lecturer in hygiene to Glasgow Provincial Committee, being in the chair. Dr. W. Leslie Mackenzie delivered an opening address on the Social Significance of Medical Inspection; Dr. A. Campbell Munro read a paper on the Hygiene of the School; Dr. George Rose discussed the opportunities afforded for medical research by school inspection. After a visit to Dunfermline to witness the fullest development of medical inspection, including the College of Hygiene and Physical Training, where students became qualified as teachers, Dr. L. D. Cruickshank gave an address on the Organisation of Physical Education as an Integral Part of the Work of the School Medical Officer. On the second day Dr. A. E. Scougal, formerly H.M. Chief Inspector of Schools for Scotland, occupied the chair. After a brief address by Sir John Struthers, K.C.B., in which he dwelt on the importance of school medical inspection and the need for coöperation of medical officers and inspectors, Dr. Alister T. Mackenzie, administrative medical officer of the Carnegie Dunfermline Trust and principal of the Dunfermline College of Hygiene and Physical Training, read a paper on the Medical and Physical Examination of Candidates for the Physical Training Profession. Dr. Isabella D. Cameron then read a paper by Dr. Darling, medical officer of the Edinburgh Provincial Committee, in which some typically difficult cases that come under the medical examination of candidates in the teaching profession were discussed. In the afternoon Dr. James Ritchie presided, and Dr. J. Halley Meikle read a paper on Medical Treatment in Towns, and Dr. J. Maxwell Ross one on Medical Treatment in the Counties.

Medical Inspection of Children in Scotland.

The Committee of Council on Education in Scotland have issued a minute requiring that the medical inspection of children in schools within the area of every school board shall be conducted in accordance with the regulations embodied in the Department's memorandum on the medical inspection and supervision of school children bearing the date March 31st, 1909; also that in cases where such inspection is not provided for under a scheme approved of by Section 17 (6) of the Education (Scotland) Act, 1908, it should be conducted by a medical practitioner who (*a*) holds the Diploma in Public Health or possesses other qualifications which are accepted by the Department as equivalent thereto, or (*b*) is not engaged in private practice. It is also stated that nothing in the minute shall prejudice the right of any school board to institute a supplementary scheme of medical inspection for the children attending schools within their district, provided that any such supplementary scheme has been submitted beforehand to the Department for approval.

Research in Materia Medica at Glasgow University.

At a recent meeting of the University Court at Glasgow

intimation was given of a bequest of £10,000 by the two sisters of the late Dr. Robert Pollok, Laurieston House, Pollokshields, to found a lectureship for research in materia medica and pharmacology, to be called "The Robert Pollok Lectureship in Materia Medica and Pharmacology." Sir Donald MacAlister was one of the trustees under the mutual settlement, and a committee was appointed by the University Court to deal with the matter.

Medical Inspection in Glasgow Schools.

The clerk of the Glasgow school board has been instructed to communicate with the Treasury and the Education Department regarding the funds available for medical treatment. The committee of the Glasgow school board entrusted with the medical inspection of scholars understand that in the Civil Service Estimates for 1913–14 the amount allocated to public elementary schools in England for medical treatment has been increased by £20,000, while the amount for Scotland has been left at the same figure as last year. They urge upon the Treasury and the department the necessity for an equivalent increase in the amount allocated to Scotland. The proposed arrangements for the medical inspection of scholars under the Glasgow board during the session 1913–14 provide for the examination of 50,000 pupils, the draft scheme being as follows:—(1) All new admissions (entrants and others), including pupils not previously examined owing to absence, 20,000; (2) pupils who attained the age of 10 years during the session, 14,000; (3) pupils presented for examination, 1000; (4) "abnormals" (re-examination), estimated at 15,000. On the basis indicated the total cost of the scheme for the session 1913–14 is estimated at £4945, of which the sum of £2472 10*s.* will fall to be repaid from the District Education (Scotland) Fund. This scheme practically involves that every child is examined twice during school life. It was suggested at the board meeting that they would have to consider whether in future it would not be advisable also to examine children when they were about to leave school.

Compulsory Notification of Ophthalmia Neonatorum and Acute Poliomyelitis in Aberdeen.

Ophthalmia neonatorum and acute poliomyelitis have been declared compulsorily notifiable in the city of Aberdeen from May 12th. Copies of a simple set of instructions with regard to the precautions to be taken to prevent infection from the former have been sent by the medical officer of health to all nurses and midwives, also to all medical practitioners in the city, for distribution among nurses working with them.

Treatment of Tuberculosis in the North.

On May 8th a conference was held at Buckie between committees representing the town council and parish council with regard to the maintenance of persons suffering from tuberculosis. The town council admitted its liability for all poor persons suffering from tuberculosis who were being dealt with by the parish council. The parish council agreed to offer facilities to the town council for the treatment of all their cases at the parish hospital, so far as accommodation would allow, at a cost of 15*s.* per week, as against 35*s.* at present being charged in other institutions in the country. The committee decided to recommend that this advantageous offer should be accepted.

May 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Tuberculosis Order for Ireland.

A Tuberculosis Order for Ireland was issued last week by the Department of Agriculture and Technical Instruction. It imposes on every person in possession or charge of any bovine which appears to be suffering from tuberculosis with emaciation, or from any chronic disease of the udder, the duty of notifying the fact to a constable, who shall, in turn, notify the local authority and the Department. The same duty is imposed on veterinary practitioners who meet with cases of suspected tuberculosis in their private practice. On receipt of such notification the local authority is to have the suspected animal examined by a veterinary inspector. Limited powers as regards slaughtering diseased animals are given to the local authority, which is also empowered to pay compensation under certain conditions to the owner of the animal. Post-mortem examinations are to be made by a veterinary inspector in the case of all animals slaughtered under the Order. It is provided, also, that the milk of any suspected cow is to be kept separate from other milk, and is to be boiled or otherwise sterilised before use. Suspected animals are to be isolated as far as possible and are not to be exposed for sale in fairs or markets, or despatched for shipment. Local authorities are given the power to compel disinfection of infected cowsheds or buildings. The Order extends to the whole of Ireland and revokes the Bovine Tuberculosis Notification Order of 1910.

Fever in Connemara.

South Connemara is threatened with a fever epidemic such as that which caused great loss of life three years ago. As in most of these epidemics in the West of Ireland, typhus and typhoid go hand in hand. Both diseases have been present in the islands on the Connemara coast since last autumn and have spread during the past few weeks. The condition of the people is miserable in the extreme. They are very poor, and their houses are small, dark, without ventilation, and overcrowded. In many cases there are no windows, the only apertures being a doorway four or five feet high and a hole in the roof to act as chimney. In addition to the family of perhaps six or eight, the house is occupied by a cow and half a dozen hens. The only water is from surface wells subject to contamination. The nearest hospital is at Oughterard, 40 miles away, the only conveyance being a van drawn by one horse; the journey takes six hours, owing to the bad roads.

The Certification Panel for co. Mayo.

Light is thrown by Mr. Alfred Faulkner, a medical practitioner at Castlebar, co. Mayo, in a letter to the *Irish Times*, on the way some certification panels have been formed. To his amazement he found his own name on a post-office list of the panel doctors for the county, though he has never joined a panel or signified his intention to do so.

Medical Benefits in Ireland.

On May 7th, the medical representatives put the terms offered by the Treasury Commission appointed to inquire into the question of extending medical benefit to Ireland [1] before the medical profession in the six Irish county boroughs to which the committee proposed to extend medical benefit. The conjoint committee, on behalf of all those places, refused the offer. It is believed that one of the largest societies in Ireland, the Ancient Order of Hibernians, which has been anxious to have medical benefit extended to Ireland, would give more—some say 12*s.* 6*d.*—but the medical profession feel that any renewed offers must come from the Treasury Commission. Now that certificates are paid for by the Crown instead of by the insured these certificates are enormously increasing, with corresponding sick benefit, greatly to the embarrassment of the Approved Societies.

Insured in Belfast.

In the city of Belfast there are now 143,000 people insured, and estimating the dependents as being equal to one and a half more, we get 357,500 out of a total population of 385,492 (1911 Census) to be attended to by the panel doctors, if medical benefit should be extended to Ireland, so as to include the dependents, as the Treasury Commission wish. This would leave only 17,992 to be looked after by the doctors not on the panel. If medical benefit as extended to Ireland includes the dependents, this course will soon probably have to be followed in England and Scotland also; so the profession in both these countries would do well to consider the situation closely.

May 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Legalised Concealment of Maternity.

THE declining birth-rate in France is causing much anxiety as to the future of the French race. One of the principal factors of the depopulation, beyond alcoholism and tuberculosis, is the yearly increasing number of children born dead. Official statistics show that in 1911 there were 35,000 stillbirths. But Dr. Jacques Bertillon holds that this

[1] THE LANCET, May 10th, p. 1350.

figure is much below the actual fact. The number of children suppressed during pregnancy or at birth reaches certainly in France the yearly figure of 100,000. To check as far as possible this massacre of the innocents the town of Toulouse has instituted, by a prefectoral decree, the right to secret maternity. Any woman about to become a mother may enter the Toulouse maternity without revealing her identity. After her confinement she may leave masked, as she entered. She must, however, deposit in a sealed envelope the data relating to her *état civil*, a precaution necessary to enable the legal declaration to be made in the event of her death, but on leaving the maternity this envelope is returned to her unopened. This system has been for some time in operation in Paris.

Further Experiments of Dr. Carrel.

On May 5th Professor Pozzi communicated to the Academy of Medicine some new experiments of Dr. Carrel, showing that connective tissue cells which had lived for more than a year outside the organism had preserved the power of growth and of giving rise to other colonies. The experiments show, moreover, that the rapidity of cell proliferation can be as easily controlled as the activity of micro-organisms. These cellular colonies in a determined and constant state of activity will undoubtedly facilitate the study of the physiological factors of the growth of the tissues, and will possibly serve some day for the diagnosis of the dynamic properties of the tissues and body fluids.

The Surgery of War.

The discussion at the Academy of Medicine, initiated by the recent war in the Balkans, on the wounds inflicted and the best methods of treating them, was continued on May 5th. M. Lucas-Championnière, whose authority cannot be gainsaid, counselled non-interference in penetrating wounds of the abdomen and thorax, a method that had been found to result in a smaller death-rate than that of immediate intervention. On the other hand, he recommended immediate intervention in wounds of the limbs, when the projectiles have inflicted considerable injury, or, as in the case of shrapnel bullets and fragments of shells, have made jagged wounds contaminated with shreds of clothing.

Legislation Against Drug Habits.

A Bill is to be introduced into the Chamber of Deputies by M. Chantemps to prohibit the sale of opium. The text of the Bill is as follows: The sale and distribution of opium, morphine, cocaine, and all analogous substances (exception being made for the requirements of industries and pharmacy) are absolutely prohibited in France and the colonies. Every infraction of this law, and especially the smoking of opium in a public or private place, shall be punished by imprisonment for from two to six months. Accomplices in any degree in the sale, distribution, use, or smoking of these drugs shall be liable to the same punishment.

The Paul Segond Foundation.

The friends, colleagues, and pupils of the late Professor Paul Segond have decided, in place of raising a statue as a memorial to him, to found a bursary at the Faculty of Medicine of Paris in his name, and have opened a subscription accordingly. The amount so far collected exceeds 108,000 francs. The subscription list will not close until the end of May, so that it is hoped that this amount may yet be considerably exceeded.

"Genou à Ressort."

Before the Société de Chirurgie on April 30th M. Demoulin read a communication by M. Billet on two cases of *genou à ressort*. The first was that of a young soldier, 21 years of age, who, having fallen on his back, next day felt a crackling in his right knee, supervening on flexion of the leg on the thigh when squatting on his heels, and only during this movement. It was then possible to make out a small projection on the inner surface of the knee. On making an incision at this spot the projection was found to be caused by the semilunar cartilage. Removal of the cartilage brought about a rapid cure. The second case was also that of a soldier who, while rushing upstairs several steps at a time, suddenly felt a painful crackling in his knee. The next day on the outer surface of the knee a projection was noticed during flexion of the leg on the thigh. Moreover, when the flexion passed beyond a right angle and the leg was again extended the crackling was reproduced. The patient was put to bed, and at the end of some days the crackling disappeared of itself. M. Demoulin himself had seen during the last year an analogous case in a man who had been injured in the left leg. It was incidentally noticed that the right knee was subject to a crackling when the limb was bent. Moreover, when the patient twisted his leg a small projection, manifestly formed by the semilunar cartilage, appeared. These are examples of the *genou à ressort* which must not be confounded with dislocation of the semilunar cartilages, but which can be correlated with the *hanche à ressort*.

May 12th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Number and Distribution of Medical Practitioners in Austria.

THE official report of the Board of Health for Austria contains some interesting figures relating to the number of medical practitioners in this country. During the year 1912 there was a marked increase over the previous year, the figures being 13,599 as compared with 13,264 in the previous year, or 2·5 per cent. more, whilst the increase for 1911 over 1910 was only 0·5 per cent. The number of practitioners per 10,000 of the population was 4·60 in 1910, 4·62 in 1911, and 4·68 in 1912, showing that the increase of practitioners was more rapid than that of the general population, and, as was pointed out in my letter published in THE LANCET of April 19th, a further increase of the number of practitioners must be expected during the next few years, for the students of medicine are now more than twice as many as they were eight years ago. The mortality amongst medical practitioners is rather low, averaging about 9 per 1000, and the majority of the men at present in practice are between 40 and 60 years of age. As the average duration of life of an Austrian medical man is 59 years, and the average duration of his practice is 30 years, the outlook is rather discouraging if the hope of making money is the chief reason for taking up this occupation. The average number of practitioners per 100 square kilometres was 4·42 a year ago; it is now 4·53. The majority of the total increase of practitioners have settled in Vienna (154 out of an increase of 335). All the larger towns show a large influx of medical men, the increases being as follows: 11 per cent. in Innsbruck, 9 per cent. in Brünn, 8 per cent. in Laibach, and 5 per cent. each in Vienna, Graz, and Linz; in Lemberg, however, there was a decrease of 2 per cent. In Vienna there are at present 3235 practitioners. The average annual increase for the period from 1900 to 1910 was nearly 2 per cent., but it has now gone up to 5 per cent. At the present time there are in this city 15·4 practitioners per 10,000 inhabitants; in 1890 the corresponding figure was 10·1, and in 1900 it was 13·6. (Berlin has now 11·1 per 10,000.) In the rural districts many places show no changes at all, except in respect of appointments, and contract practice is not much sought after. There is at present a contest in progress between the organised profession and the sick clubs, a circumstance which no doubt is responsible for the fact in question; but however this may be, a constant decrease of the proportion of practitioners to the rural population is well marked, the proportionate figures during the last three years being as follows: 4·99 in 1910, 4·85 in 1911, and 4·21 in 1912. Some interesting figures are supplied from the city of Graz, where there were 168 practitioners in 1890, 268 in 1900, and 328 in 1912, or 20·8 per 10,000 of the population. Even worse is the proportion in Innsbruck—namely, 26·7 per 10,000 of the population. The highest point of all was reached last year by Olmütz, where the proportionate figure was 27·7 per 10,000 of the population, but it fell this year to 25·9. In all cases it will be seen that in the towns where Germans predominate the number of practitioners is increasing steadily, whereas in the country districts the supply of medical men is declining. The towns inhabited by Slavs, however, show a much smaller increase or none at all, whilst the rural districts occupied by Slav nations show an increase of medical men. The growth in numbers is not confined to general practitioners, but extends to specialists as well. Even the smaller towns now have gynæcologists, dermatologists, oculists, and the like. The statistics for

the capitals show that in the year 1910 there were in Vienna alone 475 specialists, and 579 in 1912; in Graz there were 71 specialists in 1910, and 87 in 1912; in Prague there were 200 specialists in 1910, and 229 in 1912. This overcrowding of the profession has naturally an unfavourable effect on the financial prospects of specialist practice, and several suggestions have been made in the hope of counteracting this, one of them being whole-time, life-long hospital appointments. The number of women practitioners has gone up by 25 per cent., being 100 in 1911 and 125 in 1912; they are now 9 per 1000 of the general total, as compared with 7·5 per 1000 a year ago. The majority (55) live in Vienna, the rest in the various large towns, and only three of them are practising in the country. It seems that the results of female medical study are not so favourable as was originally expected. The number of female medical students in this country shows only a slow increase, and the movement seems to be less popular than it was. The medical men in the health resorts or kurorte occupy an exceptional position. There are some world-renowned balneary resorts like Carlsbad, Franzensbad, Marienbad, Meran, Baden, and Abbazia, which are always thriving, and where the medical men seem to thrive too, and it is, therefore, not surprising that the number of local practitioners goes up every year, but even there the limit will soon be reached. At the same time it must be remembered that, although there are now more practitioners than ever, there still remain places where there are none, the reason being that the fixed salary is not high enough to support a man who wishes to have adequate remuneration for his work. More than 430 vacant posts testify to the correctness of this statement.

Training of Surgical Nurses for the Army.

As already mentioned in my letter published in THE LANCET of May 3rd, the shortage of trained surgical nurses in the Austrian army will be a serious matter in the event of this country having to go to war. The Austrian Red Cross Society has, therefore, provided housing accommodation for 300 surgical nurses, and all the provincial hospitals as well as the clinics and private hospitals in the larger cities will receive women willing to take up this occupation. The Board of Health will coöperate with these endeavours, and the legislature will be called upon to make a grant of money to be expended in offering inducements to suitable persons to engage in this kind of work. By these means, in a year's time at least 2000 well-trained surgical nurses will be at the disposal of the army authorities in case of need, and in that way an urgent want will be partially supplied. This problem will not again be allowed to drop out of sight, for the recent war has clearly shown that a great amount of suffering is due to lack of forethought in this respect. It has been suggested that just as the males of the population are called upon to do military service for their country, so the females should be under an obligation to nurse sick and wounded soldiers. A regular "nurse's year" in hospitals, imposed upon about 200,000 women from 20 to 24 years of age, might solve the difficulty, but there is not at present any likelihood of this proposal assuming a practical shape.

May 12th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Fairfield Fever Hospital.

AFTER nearly four months the inquiry into the management of the Infectious Diseases Hospital near Melbourne has been concluded, and Mr. Tanner, police magistrate, has presented his report, which was strongly condemnatory of the present management. Several definite charges were held to be proved. As regards the medical supervision, the only specific allegation was the performance of unauthorised investigations after death. This was not sustained, although the report stated that operations other than intubation had been practised. The medical staff disclaimed responsibility for the fact that a body had been allowed to remain for ten days in the mortuary, but this position discloses a strange want of definiteness about the duties of medical superintendent. The hospital committee has referred the report to a sub-committee and the Government is therefore delaying action.

Maternity Bonus.

Two women have been arrested for attempting to defraud the Government by making false returns in connexion with the maternity bonus. It has been pointed out that as the Act stands all that is required is a certificate signed by the parent and nurse, and as no child has to be produced dishonest persons can furnish a false return and register a bogus birth at a cost of 5*s*., thereby making a profit of £4 15*s*. on every successful transaction. An amendment of the machinery of certification will probably be made, although the Prime Minister professes to be averse to making the procedure difficult.

Charities in Victoria.

The annual report of the inspector of charities for Victoria states that more than 25 per cent. of the accommodation in subsidised institutions is not occupied. There are 3219 hospital beds, of which 1176 were not used, and 723 beds in hospitals with benevolent asylums, of which 340 were unused. In all classes of institution 8452 beds exist, of which 2410 were unoccupied. This result is due to excessive provision in country hospitals. The Melbourne Hospital had a daily average of 312·5, although only 308 beds are officially available. The total number of cases relieved by subsidised charities during the year was 157,618, an increase of 2018 on the previous year. The expenditure was £303,391 and receipts £303,360. Five special hospitals cost £38,074; 4 metropolitan hospitals, £59,071; 35 country hospitals, £59,175; 9 hospitals with benevolent asylums, £20,021. There are 69 ladies' relief societies, which dealt with 3792 distinct cases at a cost of £8858.

The Feeble-minded.

The committee appointed by the last Australasian Medical Congress to inquire into the care of the feeble-minded has presented a report. An attempt at a census was made in Victoria by issuing circulars to medical men and school teachers, but the response was disappointing. Only 49 out of 824 medical men responded, and only 63 out of 462 private schools furnished returns. On the other hand, 2184 State schools sent replies representing 175,000 children. Dr. J. S. Yule, the honorary secretary of the committee, concludes that even in the imperfect figures there are some 3000 children in Victoria for whom special educative measures are required. The Education Department is making a beginning by opening a special school for backward children in Melbourne, and the British Medical Association (Victoria Branch) has held a special discussion of the matter, as a result of which a deputation will ask the Government to make special grants. As regards actual imbecile and idiot children, Mr. J. V. McCreery, the late superintendent at Yarra Bend Asylum, organised a special training school at the asylum nearly 20 years ago, and when he retired there were 320 children in residence. His plan of simple training was much on the lines of that now adopted in America and elsewhere. The Inspector-General of Insane, Mr. Ernest Jones, advocates special schools in all the large centres, but there is likely to be a difficulty arising from the fact that the lunacy and education departments would have divided control. The general opinion is in favour of gradually educating public opinion by starting a farm colony. So far no definite step has been agreed upon except the deputation to the Government.

Lodge Practice.

Signs of unrest are becoming marked in Victoria between lodge medical officers and the Friendly Societies. The medical men point to the increase of wages in every trade and the increased cost of living and growing taxation as a reasonable basis for seeking an advance in current rates of contract practice. The societies so far are not sympathetic, although both the Melbourne morning newspapers have urged the justice of the medical position.

Morality of Brisbane.

A deputation, which included leading medical men, waited on the Home Secretary in Queensland with a request for the suppression of brothels. It was pointed out in reply that the subject was a difficult one, but that the Government would take every means to minimise the evil.

Food and Drug Regulation in Western Australia.

A deputation from the Perth Chamber of Commerce waited on the Acting Premier and submitted the resolutions passed

by the Chamber urging that uniform regulations be agreed upon throughout the Commonwealth, and that the Western Australia Government arrange for a conference as suggested in the Federal Commissioner's report, commercial interests to be well represented. Pending uniform regulations, it was asked that Regulations 61 and 62 of the Western Australian Code regarding disclosure of the formula on the label and lodging it with the authorities be withdrawn. The Acting Premier, in reply, agreed that a conference was desirable, but held out no hope of suspending the regulations objected to by the deputation.

The Death of Sir James Graham, M.D.

The death was announced in Sydney on March 8th of Sir James Graham, M.D., a well-known public and professional man. Sir James Graham was a graduate of Edinburgh, and came to Sydney as demonstrator of anatomy. He was afterwards appointed lecturer on obstetrics in the Sydney University, which position he held for some years. He also founded the Women's Hospital. He was for many years a Member of Parliament and an active member of the city council. During the visit to Australia of King George V. when Prince of Wales Dr. Graham was mayor of Sydney, and he was shortly afterwards knighted. He published a work on hydatid disease which was a thesis for his M.D. degree. Sir James Graham was only 56 years of age, and leaves a widow and one son.

March 31st.

Obituary.

JOHN CHARLES THOROWGOOD, M.D. LOND., F.R.C.P. LOND.

WE regret to record the death of Dr. John Charles Thorowgood, which occurred at Bognor on May 2nd, after a brief illness, in his 81st year.

Dr. Thorowgood was born at Totteridge in January, 1833. He received his early education there at a school kept by his father and his uncle, Mr. Wood. He then went to University College, London, where he took several prizes for classical study. After matriculating at the University of London he entered on his medical studies at University College Hospital, where he obtained the silver medal for surgery, under Professor Erichsen, and the Silva Fellowes medal for his hospital clinical reports. At the intermediate examination for M.B. at the University of London in 1854 he took the gold medal for chemistry. During this period he conducted a chemistry class in his father's school, his first pupil being George Carey Foster, subsequently professor of physics and principal of University College. He qualified as M.R.C.S. in 1855. In 1856 he took the L.S.A. and became a Member, and later Warden, of the Society of Apothecaries. In the same year he took the M.B. of London with honours, gaining also the gold medal in medicine and being bracketed equal with his friend and fellow student, the late Dr. James Gibbs Blake, of Birmingham. In 1857 he proceeded to the M.D. degree at the University of London. For a short time he joined his brother-in-law, Dr. Dryland, of Kettering, in practice, afterwards travelling to the South of France with a patient whom he continued to attend at intervals until he retired from practice in 1900. Coming to London he joined the staff of the West London Hospital as junior physician, becoming full physician in 1873, which post he retained until 1885. In 1872 he was appointed also lecturer on materia medica and therapeutics at the Middlesex Hospital (delivering the introductory lecture in that year at the opening of the medical school). He held this office until 1888. In 1874 he was admitted to the Fellowship of the Royal College of Physicians, and for a short time before his retirement had a seat on the Council of the College. Dr. Thorowgood was appointed on the staff of the City Hospital for Diseases of the Chest, and also of the Royal General Dispensary. Later he became consulting physician to the West London Hospital, the City of London Hospital for Diseases of the Chest, and the Royal National Hospital for Consumption. He was a Fellow of the Pathological Society of London, and was for a time secretary and later vice-president of the Medical Society of London. He was also a former president of the West Kent Medico-Chirurgical Society. In 1879 he delivered the Lettsomian lectures on Bronchial Asthma, its Causes, Pathology, and Treatment before the Medical Society of London. These lectures were subsequently embodied in a book on bronchitis and bronchial asthma, with a chapter on asthma in relation to gout (1887). Among his literary works the most noticeable are "The Climatic Treatment of Consumption," published in 1864, which ran to three editions; "Notes on Asthma," first published in 1870, which also reached a third edition; "The Use of the Hypophosphites of Soda and Lime in Phthisis," first published in 1865, which attained a second edition; and the "Student's Guide to Materia Medica" (1874), which also reached a second edition. He was not an extensive contributor to the medical press, but among other contributions by him one on atony of the colon, which appeared in our columns as far back as 1869, may be referred to. Dr. Thorowgood, who for many years had an extensive practice in Welbeck-street, was an able and careful physician, and his memory will be held in respect by those who knew him.

HUGH B. WILMOT, M.R.C.S. ENG., L.R.C.P. LOND.

Mr. H. B. Wilmot died on April 23rd at the early age of 43 years, although he was the senior practitioner in Edmonton by reason of his 18 years' residence there. He was educated at King's College Hospital and commenced practice in Edmonton soon after obtaining his qualification. He had for some years represented the University of London on the board of trustees of the ancient Latymer foundation, which now supports a large secondary school in North Middlesex; but his exceptionally reserved disposition kept him clear of other public work, for he was happy in devoting all his time to the care of a century-old practice to which years agone the poet Keats was apprenticed. The funeral service at the old parish church was conducted by the rural dean of Enfield before a large congregation, including many of his colleagues practising in Edmonton. He leaves a widow and young daughter, for whom much sympathy is felt in their bereavement.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Professor J. Seemann, of Cologne.—Dr. S. Lykles, suddenly in a street in Amsterdam. For many years he was in the Dutch Indian Medical Service, returning to Amsterdam about seven years ago.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of Comitia of the Royal College of Physicians on April 24th and of the Council of the Royal College of Surgeons on May 8th Diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon 89 candidates who have passed the requisite examinations and complied with the by-laws. The following are the names and schools of the successful candidates:—

Charles Beresford Alexander, Liverpool University; John Appleyard, University College Hospital; John Stanley Arkle, M.B., B.S. Durh., Durham University; Richard Albert Banbury, St. Thomas's Hospital; Malcolm Barker, L.D.S. Eng., Charing Cross Hospital; Howard Green Barrie, M.B. Toronto, Toronto University and Middlesex Hospital; Howard James Bates, Birmingham University; Richard Shaw de Courcy Bennett and Eliot Watson Blake, Guy's Hospital; Tudor David John Bowen, Cardiff and University College Hospital; Bertram James Brewitt, St. Bartholomew's Hospital; Ralph Cay Briscoe, Oxford University and St. George's Hospital; William Hackett Broughton, Manchester University; Percy Patrick Butler, University College Hospital; Philip Norman Button, Middlesex Hospital; Frank Collar, Guy's Hospital; Louis David Cohen, Otago University and London Hospital; George Dean Compston, Cambridge University and Middlesex Hospital; Edward Robert Cecil Cooke, B.A. Cantab., Cambridge and Sheffield Universities and University College Hospital; Henry Dalziel Cowper, M.B. Toronto, Toronto University and London Hospital; William Dale, King's College and St. George's Hospitals; Andre Constant de Labauve d'Arifat, Guy's Hospital; Arthur Lewis Davies and Hector Wynne Davies, University College Hospital; Richard Denis Davy, London Hospital; Hugh Pudsey Dawson, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Sidney Alfred Day, St. Mary's Hospital; Eric Leonard Dobson, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; James Douglas Driberg, London Hospital; Edwin Llewellyn Zenas Fickling, L.D.S. Eng., King's College and St. George's Hospitals; Geoffrey Garland, Leeds University and London Hospital; Aubrey

Goodwin, University College Hospital; Arthur Oliver Gray, University College and Middlesex Hospitals; John Leslie Green, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Arthur Griffith-Williams, Cambridge University and London Hospital; John Lewis Anderton Grout, Birmingham University; David Marcus Hanson, Queen's University, Belfast; James Stanley Higgs, King's College and St. George's Hospitals; William Henry Stewart Hodge, King's College and St. Bartholomew's Hospital; Elsie Mary Humpherson, Birmingham University; George Basil Hemley Jones, Guy's Hospital; James Evelyn Thoresby Jones, University College Hospital; William Edward Kingdon, University College Hospital; Gerald Laurence, Middlesex Hospital; George Austen Lilly, B.A. Cantab., Cambridge University and London Hospital; William Mawhood Lupton, B.A. Cantab., Cambridge University and St. Thomas's Hospital; James Duncan Lyle, London Hospital; George Robert Denison McGeagh, B.A. Cantab., Cambridge and Liverpool Universities; Philip McRitchie, M.D. Manitoba, Manitoba and Edinburgh Universities and Charing Cross Hospital; Edward MacMahon Mahon, Guy's Hospital; Harold Young Mansfield, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Samuel Hugo Marcus, M.D. Paris, Paris and St. Bartholomew's Hospital; George Selvanayagan Mather, Ceylon Medical College and University College Hospital; William John Morris, University College Hospital; Herbert Henry Powys Morton, King's College Hospital; William Heneage Ogilvie, B.A. Oxon., Oxford University and Guy's Hospital; Hubert Frederick Overend, Manchester University; Joseph Owen and Robert Charles Parry, London Hospital; John Rowland Payne, University College, Cardiff, and St. Bartholomew's Hospital; William Agard Pocock, Cambridge University and St. Bartholomew's Hospital; Richard Cruikshank Poyser, Guy's Hospital; Norman Pallister Pritchard, M.A. Cantab., Cambridge University and King's College Hospital; Arthur Leslie Hanworth Rackham, Middlesex Hospital; William Arthur Rail, Melbourne University and St. Bartholomew's Hospital; Cecil Goodwin Reinhardt, Leeds University; Jose Eduardo Rivera, Manchester University; George Marsden Roberts, St. Bartholomew's Hospital; Gabriel Francis Rodrigues, B.A. Madras, Madras University and University College Hospital; Arthur Burch Rosher, Charing Cross Hospital; Walter Salisbury, Bristol University; Eric Lancelot Kingsley Sargent, B.A. Cantab., Cambridge University and St. Thomas's Hospital; Anthony Wellesley Monckton Sawyer, University College Hospital; Rupert Strathmore Scott, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Douglas Newton Seth-Smith, B.A. Cantab., Cambridge University and University College Hospital; Atul Krishna Sinha, M.B. Calcutta, Calcutta University and University College Hospital; Jack Garland Skeet, St. Thomas's Hospital; James Stewart Soutter, St. Bartholomew's Hospital; William Collis Spackman, Birmingham University and St. Bartholomew's Hospital; Douglas Benham Spence and Eric John Staddon, St. Thomas's Hospital; Aubrey John Colby Tingey, Liverpool and Oxford Universities and St. Thomas's Hospital; Edward Wing Twining, University College Hospital; Edward Hugo Udall, B.A. Oxon., Oxford University and St. Thomas's Hospital; Arnold Viney, St. Thomas's Hospital; Ivan Lindley Waddell, St. Bartholomew's Hospital; Gerald Whittington, Charing Cross and St. Bartholomew's Hospitals; Russell Facey Wilkinson, St. Mary's Hospital; and Henry Wilks, Birmingham and Leeds Universities.

Diplomas in Tropical Medicine and Hygiene were also conferred upon the following three candidates, including Miss Harper, the first lady to obtain this Diploma:—

Frank Powell Connor, Captain I.M.S., F.R.C.S., L.R.C.P., St. Bartholomew's Hospital and London School of Tropical Medicine; Clifford Allchin Gill, Captain I.M.S., L.R.C.P., M.R.C.S., D.P.H. Lond., Westminster Hospital and London School of Tropical Medicine; and Frances Margaret Harper, M.B., Ch.B. Edin., D.P.H. Camb., Edinburgh University and London School of Tropical Medicine.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At the Primary Examination for the Fellowship of the Royal College of Surgeons in Anatomy and Physiology, held on May 1st, 2nd, 6th, 7th, 8th, and 9th, 124 candidates presented themselves, of whom 49 were approved and 75 were rejected. The following is a list of the successful candidates:—

Alan Colpitts Ainsley, Cambridge University and London Hospital; Alexander Anderson, M.B., Ch.B. Glasg., Glasgow University and King's College, London; Charles William Archer, B.C. Camb., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; Edgar Broughton Barnes, St. Bartholomew's Hospital; Herbert Ernest Botten, M.R.C.S., L.R.C.P., Middlesex and St. Mary's Hospitals; Christian Frederick Beyers, St. Bartholomew's Hospital; Arthur Leslie Blunt, St. Thomas's Hospital; John Francis Carter Braine, Durham University and Guy's Hospital; Charles Milwyn Burrell, B.A. Oxon., Oxford University and London Hospital; Philip Francis Chapman, M.B., C.M. Edin., Edinburgh University and London Hospital; Francis Bernard Chavasse, B.A. Oxon., Oxford University; George Henry Chisnall, M.B., B.S. Lond., M.R.C.S., L.R.C.P., London Hospital; Wilfred Alan Curry, M.D., C.M. McGill, M.R.C.S., L.R.C.P., McGill University and Middlesex Hospital; Ralph George Dainty, M.R.C.S., L.R.C.P., Charing Cross, St. Mary's, and Middlesex Hospitals; Herbert McWilliams Daniel, Trinity College, Dublin; James Davidson, M.B., Ch.B. Aberd., Aberdeen University and London Hospital; Trevor Berwyn Davies, M.D. Lond., M.R.C.P. Lond., M.R.C.S. Eng., University College, Cardiff, University College, London, and Middlesex Hospital; Malcolm Donaldson, B.A., M.B., B.C. Camb., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; James Douglas Driberg, M.R.C.S., L.R.C.P., London Hospital; Henzell Howard Dummere, M.R.C.S., L.R.C.P., London and Middlesex Hospitals; Henry Evers, Durham University; James Fairburn Fairley, M.D., B.S. Melbourne, Melbourne University and Middlesex Hospital; Ernest Forrester-Paton, Cambridge University; Harold Edward Gibson, M.B., B.Ch. Oxon., Oxford University, King's College and St. Mary's Hospital; Douglas Walter Hume, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; James Gaymer Jones, Guy's Hospital; Theodore Hartmann Just, B.A., M.B., B.C. Camb., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; Robert Daniel Lawrence, M.A. Aberd., Aberdeen University; Robert Sharp Lawson, M.A., M.B., Ch.B. Edin., Edinburgh University and Middlesex Hospital; George Leonard Lillies, M.D., B.S. Melbourne, Melbourne University and Middlesex Hospital; Walker Stewart Lindsay, M.B., Ch.B. Edin., Dalhousie Medical College, Halifax, Edinburgh University and London Hospital; Guyon Lynden-Bell, St. George's Hospital and King's College; Duncan Alexander McCombie, M.B. Aberd., Aberdeen University, King's College, and St. Mary's Hospital; Thomas Porter McMurray, M.B., Ch.B. Belfast, Belfast and Liverpool Universities; John Tertius Morrison, M.B., Ch.B. Edin., Edinburgh University and King's College; Cyril Eaton Petley, Guy's Hospital; Leonard George Phillips, Middlesex Hospital; Kenneth Noel Purkis, Guy's Hospital; Norbert Leo Maxwell Reader, M.B., B.S. Lond., M.R.C.S., L.R.C.P., Leeds University and Guy's Hospital; Francis Donaldson Saner, B.A., M.B., B.C. Camb., M.R.C.S., L.R.C.P., Cambridge University and Guy's Hospital; Allan Seddon, M.B., Ch.B. Liverp., Liverpool University and London Hospital; Hilda Nora Shufflebotham, Birmingham University; Robert Fraser Standage, M.R.C.S., M.R.C.P., St. Bartholomew's Hospital; Thomas Collyer Summers, London Hospital; Robert Evelyn Tissington Tatlow, B.A., M.D., B.Ch., B.A.O. Dub., Trinity College, Dublin, and University College; Donald Carmichael Thomas, St. Thomas's Hospital; George Henry Wickens, M.B., B.S. Melb., Melbourne University and Middlesex Hospital; Cyril Mathias Williams, University College, Cardiff, and St. Mary's Hospital; Claude Reginald Wright, B.A., B.C. Camb., Cambridge University and St. Bartholomew's Hospital.

The Council has conferred Licences to practise Dentistry upon the following five candidates who have now complied with the by-laws:—

Gwilym Tremain Davies and Samuel Trude Fripp, Middlesex and National Dental Hospitals; John Wilfrid Hall, Guy's Hospital and Birmingham University; Arthur Ridges Rowe, Middlesex and National Dental Hospitals; and Hubert Ernest Shepherd, Guy's and Middlesex Hospitals.

At the First Professional Examination for the Licence in Dental Surgery held on May 2nd, 3rd, and 5th, the following candidates were approved in the under-mentioned subjects:—

Mechanical Dentistry and Dental Metallurgy.—Philip Eric Bernhard and Ernest Horace Bryant, Guy's Hospital; Henry Hall Buckley, Manchester University; Basil Clothier, Liverpool University; Charles Alfred Ernest Cook, Guy's Hospital; William Henry Cooper, Sheffield University; Cyril Lister Curle, Guy's Hospital; William Edwin Dodd, Royal Dental Hospital; Herbert Gee, Liverpool University; Cyril Bowdler Henry, Royal Dental Hospital; Wilfrid George Hollands, Guy's Hospital; John Roland Humphreys, Liverpool University; Philip Everard Jessop, Guy's Hospital; Eric William Joyner, Bristol University; Arthur Edmund Lowein, Guy's Hospital; Leslie Grantham Lunnon, Royal Dental Hospital; John Lisle Mugford and Philip Thomas Pearce, Guy's Hospital; Lancelot Eric Charles Peckover, Royal Dental Hospital; Frank Edwin Rudd, Reginald Joseph Ryland, Dudley Francis Small, and Walter Aslatt Turner, Guy's Hospital; William Harold Waldman, Royal Dental Hospital; and Samuel Anthony Withers, Guy's Hospital.

Dental Metallurgy.—William James McBain Allan and John Walter Beacock, Guy's Hospital; Vernon Wilfrid Ayres Bell-Bonnett, Royal Dental Hospital; John Clifford Brown, Birmingham University; Trafford Dudley Corke, Guy's Hospital; Frank Briggs Cullen and William John Curtis, Royal Dental Hospital; George Dee, Guy's Hospital; George Gordon Downie, Liverpool University; Keith Mitchell Keitley Duff, Guy's Hospital; Arthur Duffy, Manchester University; Richard John Spaull Ellis, Royal Dental Hospital; Edward Cecil Gray, Manchester University; William Harold Greet, Bristol University; Ralph Hawksworth, Sheffield University; Joseph James Sterling Hill, B.A. Cantab., Guy's Hospital; Francis William Holgreaves, Liverpool University; George Hubert Howe and Pierre Jean Hugo, Guy's Hospital; William Anthony Johns, Royal Dental Hospital; John Arnold Johnstone, Guy's Hospital; Thomas Charles Stretton Jones, Royal Dental Hospital; Charles Hardiman Laver, Guy's Hospital; Desmond George Grenville Levason, Birmingham University; Harold Pembroke Mabe, Royal Dental Hospital; Harry Read Mansergh, Liverpool University; Ernest Sidney Martin, D.D.S. Penn., University of Pennsylvania; Frank Douglas Neal, M.R.C.V.S., Guy's Hospital; Clarence Longton Normandale, Royal Dental Hospital; Fairman John Ordish, Guy's Hospital; Stanley Edwin Pomeroy, London Hospital; Harry Stanyer Powell, Birmingham University; Earl Leslie Robert and Simeon Cyril Shaw, Royal Dental Hospital; Norman Leslie Smallbone, London Hospital; Stanley Gordon Smith, Guy's Hospital; David Stewart, Manchester University; Joseph Gilbert Wade Sutcliffe, Leeds University; Michael Christian Vos Thom and Petrus Lafras van Schalkwijk, Guy's Hospital; Herbert Vernon, Manchester University; Hampdon Wallis, Royal Dental Hospital; George William Wheldon, Guy's Hospital; Ronald Harold Vyvyan Whybro, Royal Dental Hospital; Roger Gilbert Wilshere, Birmingham University; James Thomson Wood, Royal Dental Hospital; William Cochrane Woodall, Manchester University; Trevor Corry Woodhouse, Royal Dental Hospital; and Samuel Adolf Woolf, Guy's Hospital.

Mechanical Dentistry.—Arthur Bramston Austin, Royal Dental Hospital; Douglas Arthur Bevis, Guy's Hospital; James Arthur Balfour Carson, Royal Dental Hospital; Arnold Court, Birmingham University; Leopold Harold Cross, Manchester University; Ernest Archibald Dawson and Arthur Cyril Dean, Guy's Hospital; Herbert Reginald Evans, Royal Dental Hospital; Raymond Cecil Thomas

Evetts, London Hospital; Lacy Norman Glaisby and Ernest Alphonse Hardy, Royal Dental Hospital; Albert Ernest Henry, Birmingham University; Stephen Alphonsus McCormack, Royal Dental Hospital; George Francis Maguire, Leeds University; James Henry Martin, Royal Dental Hospital; Joshua Laurence Oates and Dudley George Pearce, Guy's Hospital; Eric Vincent Pollitt, Manchester University; Charles Young Roberts and Maurice Oliver Simpson, Royal Dental Hospital; Edgar William Smith, Royal and National Dental Hospitals; Leonard Smith, Birmingham University; George Ernest Spero, Royal Dental Hospital; Willem Jacobus Rousseau Viljoen, Guy's Hospital; and Marjorie Jane White, Bristol University.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—A meeting of this society will be held at 11, Chandos-street, Cavendish-square, London, W., to-day (Friday, May 16th), at 8.30 P.M., when a paper will be read on Phlebotomous and Dengue Fever by Lieutenant-Colonel Cecil Birt, R.A.M.C.

THE Imperial Colonial Office of Germany has appointed Dr. Deppe, of Dresden, who has taken an active part in hospital and philanthropic work in Dresden, to the post of director of the important colonial hospital at Tanga, German East Africa, which has 300 beds.

THE following delegates have been appointed by the Brussels Medical Graduates' Association to attend the Paris Congress of the Royal Institute of Public Health:—Dr. Fielden Briggs, Dr. Arthur Haydon, and Dr. Bryce Macaulay.

HUNTERIAN MUSEUM.—At the quarterly meeting, on May 14th, of the trustees of the Hunterian Museum of the Royal College of Surgeons of England Viscount Morley and Sir John Wolfe Barry were added to the number of the trustees of the collection.

DEATH OF SIR EDMUND HAY CURRIE.—On May 10th Sir Edmund Hay Currie, the secretary of the Metropolitan Hospital Sunday Fund, died at Hindhead. He was 79 years of age and had been connected with the Fund from its early days. For 30 years he was one of its honorary secretaries, and at the time of his death the paid secretary. Sir Edmund Hay Currie was at one time chairman of the London Hospital and vice-chairman of the Metropolitan Asylums Board.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next general meeting of this association will be held at 11, Chandos-street, Cavendish-square, London, W., on Tuesday, May 27th, under the presidency of Dr. J. Greig Soutar, at 3.15 P.M. A paper on the Spread of Infection by the Ascending Lymph Stream of Nerves (ascending Neuritis) from the Peripheral Inflammatory Foci to the Central Nervous System (with lantern demonstration) will be communicated by Dr. R. G. Rows and Dr. David Orr. Members will dine afterwards at the Café Monico at 7 P.M. The annual meeting will take place in London on Wednesday and Thursday, July 16th and 17th.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Whitsuntide Holidays.

THE House of Commons on Thursday, May 8th, adjourned until Tuesday, May 27th.

HOUSE OF COMMONS.

WEDNESDAY, MAY 7TH.

Panel Service in Sparsely Populated Areas.

Mr. HICKS BEACH asked the Secretary to the Treasury to state what steps could be taken by members of an Approved Society in a rural district to obtain medical benefits from panel doctors when no doctor resided within five miles of their residences, and those doctors who lived outside that radius pleaded that they were prevented by the regulations of the Insurance Commissioners from treating patients residing more than five miles from the doctor's home.—Mr. MASTERMAN replied: The honourable member appears to be under a misapprehension. There is nothing in the Regulations to prevent a medical man on the panel treating a patient residing more than five miles from the doctor's home. Parliament has voted a special grant for the payment of mileage to doctors in exceptionally sparsely populated districts.

Mr. HICKS BEACH: What is an insured person to do in the circumstances? I know that a case of this kind has actually occurred.—Mr. MASTERMAN: We cannot provide a doctor for every person who lives in a mountainous or fen district. All we can do is to give the person as good, or, if possible, a better chance of medical treatment than he would have received before the Act was passed.

Mr. HICKS BEACH: I want to know what an insured person is to do in a case of this kind, which actually occurred in a rural district. To whom is he to apply in order to obtain medical benefit?—Mr. MASTERMAN: The insured person has to apply to the Local Insurance Committee in order to provide him with a doctor and, if he has not chosen a doctor himself, the doctor provided will certainly treat him. In some special cases a special grant is made in respect of persons who are so far away.

Panel Service in Huddersfield and Holmfirth.

Mr. LANE-FOX asked the Secretary to the Treasury whether, in addition to Selby, the towns of Huddersfield and Holmfirth were included in "the obscure villages" in which alone free choice of doctor under the National Insurance Act was not now enjoyed.—Mr. MASTERMAN answered: The honourable Member is under a misapprehension. The panel system is in operation in all the three districts named. In Selby five out of eight doctors are on the panel, in Holmfirth three out of six, and in Huddersfield 56 out of 68. There is free choice of doctors from among all who have accepted service under the Act.

Mr. SHERWELL: Is it not the fact that the administration of the Act in Huddersfield has given universal satisfaction?—Mr. MASTERMAN: I think so. When you have 56 doctors out of 68 serving, some of the extra number not being engaged in industrial practice at all, I think I am justified in saying that persons insured have a free choice of doctor.

Mr. CLOUGH: Will my right honourable friend take into consideration the advisability of sending down an inspector to the Selby district to inquire into any complaints which there may be, and into the general administration of the Insurance Act?—Mr. MASTERMAN: If the honourable Member desires it I shall certainly call the suggestion of the honourable Member to the attention of the inspector who has that district under his control.

Medical Certificates for Sickness Benefit.

Mr. F. HALL (Dulwich) asked the Secretary to the Treasury whether his attention had been called to the decision of the Court of Appeal, in the case of Heard and Others *v.* the Court Abbey Foresters, as to the right of Approved Societies under the National Insurance Act to refuse to accept medical certificates for sickness benefit from any except doctors on the panels; and if, in view of this decision, instructions would now be issued to Approved Societies to make it clear that an insured person was entitled to sickness benefit on presentation of a certificate signed by any qualified doctor.—Mr. MASTERMAN said in reply: The answer to the first part of the question is in the affirmative, but the honourable Member seems to have misinterpreted the effect of the decision which appears to be based on the precise rule of the society in question.

Sanatorium Benefit in Kent.

Replying to Mr. HOHLER, Mr. MASTERMAN said: The sums available under Section 16 of the National Insurance Act for sanatorium benefit in Kent are approximately £19,500. I am obtaining a return from all the Insurance Committees giving information as to their expenditure on sanatorium benefit, and when this has been received I shall be glad to supply the honourable Member with full particulars in regard to Kent. Insurance Committees have no duty or power to provide sanatoria, but they have made arrangements with approved institutions for the reception of insured persons suffering from tuberculosis, and they have authorised the allowance of such special food as is prescribed by the doctor attending the case.

Sanatorium Treatment in London.

Mr. GRANT asked the Secretary to the Treasury how many applications for sanatorium treatment were at present before the London Insurance Committee for which no immediate accommodation was forthcoming; and whether the London Insurance Committee were in a position to grant facilities for treatment and diagnosis in hospitals for insured persons.—Mr. MASTERMAN replied: About 3000 applications for sanatorium benefit have been received by the London Insurance Committee. These include, besides a certain number of persons not entitled to the benefit, many who require and are receiving other forms of treatment than in sanatoria. 283 persons recommended for treatment in sanatoria are receiving domiciliary treatment while arrangements are made for their admission. With regard to the last part of the question, I am informed that the committee have made arrangements for hospital treatment in suitable cases.

Sir C. KINLOCH-COOKE: Can the right honourable gentleman say how many patients are enjoying the hospitality of these "first-class hotels"?—Mr. MASTERMAN: I think nearly 1000 have been or are in the sanatoria at the present time. Something like 750 were recommended for and have been receiving domiciliary treatment. It is the endeavour of the Insurance Commissioners and the Insurance Committee to get the treatment applied for as soon as possible.

Pediculosis in Elementary Schools.

Mr. CHARLES BATHURST asked the President of the Board of Education whether he was aware that in some districts in Gloucestershire lectures were given periodically to the elder children in the elementary schools on the subject of pediculosis, with the result that this objectionable and easily communicable complaint had been substantially reduced among the children attending such schools; and whether, in view of the prevalence of this complaint throughout the country, the Board would encourage this practice elsewhere.—Mr. J. A. PEASE said in reply: The practice which the honourable Member refers to is approved by the Board and is adopted in a number of districts.

Typhus Fever in Oughterard Union.

Mr. O'MALLEY asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the medical officer of the Lettermore dispensary district of the Oughterard union reported to the district council on April 10th that several cases of typhus and typhoid fever had broken out in his district; that he could not remove some of the patients 30 or 40 miles to hospital without endangering their lives; that the doctor offered his own residence to the council as a temporary hospital; that the council ordered the said residence to be fitted up as a hospital and trained nurses procured; whether he was aware that the Local Government Board countermanded the order, and as a result some of the patients had since died, and that further outbreaks of typhus had since occurred in the district; and whether, in view of the fact that this district had frequently been visited by repeated outbreaks of fever,

he would now see his way to recommend the necessary expenditure on the building of a fever hospital.—Mr. BIRRELL wrote in reply: The facts appear to be generally as stated in the first four paragraphs of the question, but the outbreak was not so serious as the medical officer reported. The statement that the Local Government Board countermanded the order of the board of guardians with regard to the fitting up of the medical officer's house as a temporary hospital is not correct. The Board's inspector, having thoroughly investigated all the reported cases, attended at the meeting of the guardians on April 24th and discussed the whole circumstances of the outbreak with them, when the guardians placed on record their pleasure at learning that there was no necessity to establish a temporary fever hospital at Bealadangan (in the Lettermore dispensary district), and they gave directions that the arrangements for doing so were not to be carried out.

Compulsory Vaccination in Ahmedabad.

Mr. KEIR HARDIE asked the Under Secretary of State for India whether, in view of the fact that the Ahmedabad municipal commission, as at present constituted, was not an elected body, and therefore could not be said to be representative of the general population of the district, he would request the Government of Bombay to refrain from complying with the suggestion of the Commission that compulsory vaccination be established in Ahmedabad and delay the matter until the people of Ahmedabad were directly represented by an elected authority.—Mr. MONTAGU answered (in a written reply): The application of the Ahmedabad municipality to the Bombay Government for the extension of the compulsory Vaccination Act to the municipal district was made on the ground of the continuous heavy mortality from small-pox. The Bombay Government has extended the Act and the Secretary of State is not prepared to take any action in the matter.

Care of Feeble-minded Poor.

Mr. STAVELEY-HILL asked the President of the Local Government Board whether he could state the names of the counties in which guardians had made application to the Local Government Board for orders for the formation of joint committees of boards of guardians for the purpose of provision and special accommodation for, or special treatment of, the feeble-minded or epileptic poor.—Mr. BURNS wrote in reply: An order has been issued for a joint committee of guardians in the county of Wiltshire. Orders are in preparation for the counties of Cornwall, Essex, Glamorgan, Salop, Staffordshire, and Warwickshire, and applications are before me from the counties of Kent, Suffolk, and Surrey. I understand that schemes of combination are also under consideration in several other counties.

Sewage and Trade Effluents.

Mr. BURNS informed Mr. SHERWELL that he hoped to be able to introduce during the present session a Bill for dealing with the question of sewage and trade effluents.

THURSDAY, MAY 8TH.

Scarcity of Hospital Nurses.

Dr. CHAPPLE asked the President of the Local Government Board whether he was aware that hospitals under the Metropolitan Asylums Board had had to turn patients away because of the dearth of nurses, and that difficulty had been found by many Poor-law guardians in securing nurses; and, if so, could he say what steps he proposed to take to increase the supply or to attract the best class of women to the profession.—Mr. BURNS answered: The Metropolitan Asylums Board were, I understand, apprehensive that they might have to restrict the admission of certain classes of infectious cases owing to the difficulty in obtaining nurses, but I am glad to learn that it is now hoped that no such limitation will be necessary. The shortage of nurses which is, I believe, being generally experienced is due to causes which are beyond my control.

Dr. CHAPPLE: Is the right honourable gentleman aware that in those countries where State registration of nurses has been established it has had the effect of raising the status and dignity of the profession and attracting the best type of women?—Mr. BURNS: I cannot believe that either registration or classification is a testimony as to character or fitness.

Mr. GLYN-JONES: If a dearth of nurses exists is it not likely to be increased by the sanatoria set up under the Insurance Act, and will the right honourable gentleman take such steps as are open to him to deal with it.—Mr. BURNS: The temporary dearth of nurses is due to the National Insurance Act, the demand for nurses in sanatoria, and the large increase in the number of nursing homes and similar institutions. I am very glad to say that the deficiency is being supplied.

Free Choice of Doctors in Wiltshire.

Mr. GEORGE TERRELL asked the Secretary to the Treasury whether the Wiltshire Insurance Committee at Trowbridge had received an application from over 150 members of various friendly societies resident in the villages of Box and Colerne, in Wiltshire, requesting that they might be allowed to make their own arrangements in the choice of doctors for medical attendance during illness, and on what grounds, if any, the application had been refused.—Mr. MASTERMAN answered: I am informed by the Wiltshire Insurance Committee that between Jan. 13th and the end of March they received applications from about a hundred insured persons, mostly from the neighbourhoods of Colerne and Box, for permission to make their own arrangements for medical attendance and treatment. These applications were on identical printed forms, and gave no reasons and no indication of what arrangements the applicants proposed to make. The Committee were of opinion that there was an organised attempt to break down the panel system, and accordingly decided not to grant the applications. Wherever the Committee have received genuine applications, and the reason given and the arrangements proposed have in their opinion been satisfactory, they have given permission.

Payments to Panel Practitioners.

In answer to Sir J. D. REES, Mr. MASTERMAN said: A medical man is entitled under his contract with the Insurance Committee to be credited with a sum of 7*s.* in respect of each insured person, for whose treatment he is responsible during the whole year. It follows that a deduction must be made from this sum in respect of every insured person for whom he ceases to be responsible during any portion of that year in order to pay the doctor who is, in fact, responsible for his treatment during that period.

Assistants of Medical Men and Panel Practice.

Replying to Mr. GODFREY LOCKER-LAMPSON, Mr. MASTERMAN said: Under the Regulations it is open to any duly qualified assistant to a medical man to place his name on the panel, and if he joins the panel he is immediately responsible to the Insurance Committee. If he does not join the panel he can only treat insured persons on behalf of his principal when the latter is precluded by urgency of other professional duties, absence from home, or other reasonable cause from giving personal attendance to the insured persons under his care. In these exceptional cases his principal is responsible for him to the Insurance Committee.

Medical Benefit at Salford.

Mr. F. HALL (Dulwich) asked the Secretary to the Treasury whether an agreement had been arrived at by doctors in the Salford district for the provision of medical benefit under the National Insurance Act, by which all the qualified medical men in the district were on the panel, the insurance funds being distributed through a committee of doctors on the basis of medical services actually rendered; whether this arrangement was working satisfactorily both as regarded the insured persons and the doctors themselves; and whether he would consider as to extending the Salford system to other districts where at present there were not sufficient capable doctors properly to look after the health of the large number of patients allotted to them.—Mr. MASTERMAN said in reply: The Salford Insurance Committee have adopted a method of payment by attendance, which is one of the alternative methods of remuneration prescribed by the Regulations. I am informed that the arrangement is working satisfactorily. It is open to any Insurance Committee to adopt this method of payment, but except in one or two areas the doctors, who were in all cases consulted by the Insurance Committees, have preferred a system of payment either in whole or in part by capitation.

Insured Persons in Stafford.

Mr. MASTERMAN informed Sir WALTER ESSEX that there were five doctors on the panel for the Stafford district. The average number of persons on their lists was 1378, and there were approximately 3000 persons as yet unallotted.

Free Choice of Doctor at St. Andrews.

Major ANSTRUTHER GRAY asked the Secretary to the Treasury why a considerable number of insured persons in St. Andrews were deprived of the free choice of doctors.—Mr. MASTERMAN, in the course of his reply, said: Parliament definitely decided that the discretion in permitting insured persons to make their own arrangements should be vested in the Local Insurance Committees, and individual applicants must, therefore, satisfy the Committee that the grounds for which they ask permission are sufficient.

Sanatorium Benefit in Northamptonshire.

Mr. CHIOZZA MONEY asked the Secretary to the Treasury whether there was sufficient local accommodation at present for the tuberculous patients under the care of the Northamptonshire Insurance Committee; and, if not, whether he would state what steps, if any, had been, or were being, taken by local authorities in Northamptonshire to avail themselves of part of the sanatorium capital grant.—Mr. MASTERMAN furnished the following written answer: I understand that the local accommodation is not sufficient for the treatment of all the tuberculous insured persons recommended by the Northamptonshire Insurance Committee. The Committee are not, however, precluded from making arrangements for their admission to institutions in other areas, and I understand that the Northamptonshire county council are now considering a scheme for the provision of additional accommodation locally.

Vaccination in the Isle of Man

Mr. POINTER asked the Secretary of State for the Home Department whether he was aware that the Manx House of Keys had passed a conscience clause applying to the Vaccination Acts and that the Upper Chamber had rejected it; and whether he could make arrangements with the Lieutenant-Governor of the Isle of Man, as chief of the police, to prevent prosecutions for non-vaccination pending the settlement of the question by the two Houses.—Mr. MCKENNA answered: I have seen a newspaper report of the proceedings. The matter is settled by the rejection of the Bill, and I fear I could not properly take the action suggested.

Medical Treatment of Indian Women.

Sir JOHN JARDINE asked the Under Secretary of State for India whether he could state what were the proposals for medical treatment of Indian women by means of travelling dispensaries made by Mrs. Emanuel, wife of Mr. Emanuel, Indian Civil Service, collector of Larkhana, in Sind; and whether any, and what, action was taken thereupon by the Government of Bombay.—Mr. MONTAGU said in reply: The proposal was that in each district there should be a travelling dispensary, fully equipped with a lady doctor and nurse, to bring medical aid within the reach of villagers, particularly women and children. The Bombay Government were unable to accept the scheme on financial and other grounds. But they have offered to aid the establishment of stationary dispensaries under women doctors for the treatment of women and children.

BOOKS, ETC., RECEIVED.

CHURCHILL, J. AND A., London.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yale), Professor of Surgery in Cornell University Medical College, New York. Seventh edition, revised and enlarged. Price 24*s.* net.

Elementary Bacteriology and Protozoology. The Microbiological Causes of the Infectious Diseases. By Herbert Fox, M.D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Price 6*s.* 6*d.* net.

Clinical Pathology. By P. N. Panton, M.A., M.B., B.C. Cantab., Clinical Pathologist to the London Hospital. Price 12*s.* 6*d.* net.

FISCHER, GUSTAV, Jena.

Die Gesetze der Leukozytentätigkeit bei entzündlichen Prozessen. Von Dr. med. M. Löhlein, a.o. Professor an der Universität Leipzig. Price M. 1.

Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein in Rostock. Zweiunddreissigste Lieferung. Band III. Physiologie des Energiewechsels, Physiologie des

Formwechsels. Erste Hälfte. Seite 645–806. Price M. 5. Dreiunddreissigste Lieferung. Band III. Erste Hälfte. Seite 807–968. Price M. 5.

Handbuch der pathogenen Mikroorganismen. Herausgegeben von Dr. W. Kolle und Dr. A. von Wassermann. Zweite vermehrte Auflage. Zweiundvierzigste Lieferung (Bd. VIII., Seite 1–112). Price M. 5.

Dreiundvierzigste und vierundvierzigste Lieferung. (Bd. II., S. 1419–1562 und Titel; Bd. III., S. 1–48; Bd. V., S. 1281–1356 und Titel.) Price M. 5.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.

The Practitioner's Encyclopædia of Medicine and Surgery in all their Branches. Edited by J. Keogh Murphy, M.C. Cantab., F.R.C.S., Surgeon, Miller Hospital for South-East London. Second edition. Price 35s. net.

JACK, T. C. and E. C., 67, Long Acre, London, W.C., and Edinburgh. DODGE PUBLISHING CO., New York.

Youth and Sex. Dangers and Safeguards for Girls and Boys. By Mary Scharlieb, M.D., M.S., and F. Arthur Sibly, M.A., LL.D. Price 6d. net.

KNIGHT, CHARLES, AND CO., LIMITED, 227–239, Tooley-street, London, S.E.

Knight's Handbook for the Use of Health Insurance Committees and all Other Local Authorities, Approved Societies, and Medical Practitioners affected by the National Insurance Act, 1911. Price 6s. net.

LAURIE, T. WERNER, LIMITED, London.

Inland Golf. By Edward Ray, Open Champion, 1912. Price 5s. net.

MACMILLAN COMPANY, THE, New York.

Malaria, Cause and Control. By William B. Herms, M.A., Assistant Professor of Applied Parasitology, University of California; Officer in Charge of Malaria Investigations, California State Board of Health. Price 6s. 6d. net.

MASSON ET CIE, Paris.

IVe Conference Internationale de Génétique, Paris, 1911. Comptes Rendus et Rapports. Édités par Ph. de Vilmorin, Secrétaire de la Conférence. Price Fr.25.

MURRAY, JOHN, Albemarle-street, London, W.

Open Sesame. By B. Paul Neuman, author of "Roddles," &c. Price 6s.

NERVOUS AND MENTAL DISEASE PUBLISHING CO., New York.

Nervous and Mental Disease Monograph Series No. 14. General Paresis. By Professor Emil Kraepelin of Munich. Price $3.00.

NISBET, JAMES AND CO., LIMITED, London.

With the British Red Cross in Turkey. The Experiences of Two Volunteers, 1912–13. By A. Duncan-Johnstone. Sketches by F. Lyon. Price 5s. net.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, New York.

Studies from the Rockefeller Institute for Medical Research. Reprints. Volume XVI. Price not stated.

SMITH, ELDER, AND CO., London.

Halfpenny Alley. By Marjory Hardcastle. With an Introduction by Alexander Paterson, and a Frontispiece by Lady Stanley. Price 5s. net.

SOCIÉTÉ D'EDITIONS SCIENTIFIQUES ET MÉDICALES (F. GITTLER, Directeur), 10, Place Saint-Michel, Paris.

Les Glandes à Sécrétion Interne. Anatomie-Physiologie-Pathologie. Glandes Surrénales et Organes Chromaffines. Par M. Lucien, Professeur Agrégé, Chef des Travaux Anatomiques à la Faculté de Médecine de Nancy, et J. Parisot, Chargé des Fonctions d'Agrégé de Médecine à la Faculté de Nancy. Price not stated.

TORDESILLAS, VALENTIN, Tutor, 16, Madrid.

Notas Clínicas de Cirugía Ortopédica. Por Adolfo López Durán. Médico de la Real Casa, Jefe del Dispensario de Cirugía ortopédica y osteo-artropatías del Instituto Rubio. Folleto 2º. Curso de 1911 a 1912. Price not stated.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Diagnose und Therapie der Herzkrankheiten. Von Prof. Dr. Ludwig Braun, Primararzt in Wien. Zweite, vollständig umgearbeitete Auflage. Price, paper, M.12.

VIGOT FRÈRES, Paris.

Action des Rayons X sur les Glandes Surrénales. Recherches Cliniques et Expérimentales. Par le Docteur Paul Cottenot, Ancien Interne des Hôpitaux de Paris. Price not stated.

Formulaire Consultations Médicales et Chirurgicales. Par MM. G. Lemoine et E. Gérard, avec la Collaboration de MM. E. Doumer et J. Vanverts. Sixième Édition, conforme au nouveau Codex, 1908. Price Fr.8.

Conférences sur les Accidents du Travail et les Affections Traumatiques. Par le Dr. Olivier Lenoir, Ancien Interne des Hôpitaux de Paris. Deuxième Série. Price Fr.3.50.

VOGEL, F. C. W., Leipzig.

Die Fermente und ihre Wirkungen. Von. Prof. Carl Oppenheimer, Dr. Phil. et Med., Berlin-Grunewald. Vierte völlig umgearbeitete Auflage. Band I. Price, paper, M.20; bound, M.21.50.

Lehrbuch der Physiologie des Menschen. Herausgegeben von N. Zuntz und A. Loewy in Berlin. Zweite, verbesserte Auflage. Price, paper, M.20; bound, M.22.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, LIMITED, London.

Chloride of Lime in Sanitation. By Albert H. Hooker, Technical Director, Hooker Electrochemical Company. Price 12s. 6d. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. SIMPKIN, MARSHALL, AND CO., LIMITED, London.

Invalid and Convalescent Cookery. By Mary E. Birt. Second edition. Price 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ABRAHAMS, ADOLPHE, M.B., B.C. Cantab., M.R.C.S., L.R.C.P., has been appointed Medical Registrar to the London Temperance Hospital.

BEEVOR, C. F., M.B., B.Ch. Oxon., has been appointed House Physician at University College Hospital.

CLARE, T. C., M.D., B.S. Lond., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Leicester Royal Infirmary.

GILLIATT, WILLIAM, M.D., M.S. Lond., F.R.C.S. Eng., has been appointed Surgeon to Out-patients at the Samaritan Hospital for Women.

HIGGINS, T. SHADICK, M.B., B.S. Lond., has been appointed Medical Officer of Health of St. Pancras.

HIRD, R. B. D., M.D. Birm., F.R.C.S. Edin., has been appointed a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 21, 22, and 36, with a view to his being employed in all Ophthalmic cases arising in those circuits.

KHAN, M. M., M.B., B.S. Lond., has been appointed Tuberculosis Officer at University College Hospital.

LAPAGE, C. P., M.D. Vict., M.R.C.P. Lond., has been appointed Honorary Physician for Children at the St. Mary's Hospitals, Manchester.

MARTIN, L. A., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at University College Hospital.

MAYNE, W. J. F., M.B., Ch.B. Edin., has been appointed Dispensary Medical Officer and Medical Officer of Health to Ballyward District, Banbridge, co. Down.

NORMAN, G. P., M.D. Edin., has been appointed Medical Officer to the Electrical Department at the Oldham Royal Infirmary.

PEARSON, W. J., M.B., B.Ch. Oxon., has been appointed House Physician at University College Hospital.

SLADDEN, ARTHUR F. S., B.M., B.Ch. Oxon., has been appointed Pathologist and Registrar at the Metropolitan Hospital.

SMEDLEY, RALPH DAVIES, M.D. Cantab., has been appointed County Medical Officer of Health of West Sussex.

STEWART, M., M.B., Ch.B. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Portree District of the county of Inverness.

WHITE, HILL WILSON, M.B., B.Ch., B.A.O. N.U.I., has been appointed Second Assistant Medical Officer at the City of Westminster Union Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERYSTWYTH INFIRMARY AND CARDIGANSHIRE GENERAL HOSPITAL.—House Surgeon and Secretary. Salary £150 per annum, with board and washing.

ALNWICK INFIRMARY.—House Surgeon, unmarried. Salary £140 per annum, with board and apartments.

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL, Woodchurch-road.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRKENHEAD UNION INFIRMARY AND WORKHOUSE.—Senior Resident Assistant Medical Officer. Salary £130 per annum, with board, apartments, &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surgeon. Salary £75 per annum, with board, rooms, &c.

BIRMINGHAM, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—Two House Surgeons for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BIRMINGHAM, RUBERY HILL ASYLUM.—Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, and washing.

BIRMINGHAM UNION, DUDLEY-ROAD INFIRMARY.—Assistant Medical Officer. Salary £125 per annum, with apartments, rations, laundry, and attendance.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Gynæcologist.

BRENTFORD UNION INFIRMARY, WORKHOUSE AND SCHOOLS.—Medical Superintendent and Medical Officer. Salary £400 per annum, with rations and attendance.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BRIGHTON, ROYAL SUSSEX COUNTY HOSPITAL.—House Physician, unmarried. Salary £100 per annum, with apartments, board, and laundry.

BRISTOL, COSSHAM MEMORIAL HOSPITAL, Kingswood.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

BRISTOL ROYAL INFIRMARY.—Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £75 per annum, with board, laundry, and apartments.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

BUXTON, DEVONSHIRE HOSPITAL, Derbyshire.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CALCUTTA, CORPORATION OF.—Health Officer. Monthly salary not less than Rs.1250 and not more than Rs.2000.

CANCER HOSPITAL (FREE), Fulham-road, S.W.—Physiological Chemist. Salary £350 per annum.

CANTERBURY BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £160 per annum, with board, lodging, washing, and attendance.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Resident Medical Officer, unmarried. Salary £90 per annum, with board, lodging, and washing.

CARDIFF, KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION.—Medical Officer to the Tuberculosis Hospital. Salary £200 per annum, with board, lodging, &c.

CHELTENHAM GENERAL HOSPITAL.—House Physician, unmarried. Salary £100 per annum, with board, lodging, and washing.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and laundry. Also House Physician. Salary £90 per annum, with board, apartments, and laundry.

CHICHESTER, WEST SUSSEX COUNTY ASYLUM.—Locum Tenens Medical Officer, unmarried. Salary 4 guineas per week, with apartments, board allowance, and washing.

DENBIGH, DENBIGHSHIRE INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—House Surgeon, unmarried. Salary £50 for first six months, £75 for second. Also Assistant House Surgeon, unmarried. Salary at rate of £75 per annum, with board and laundry.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board, washing, and lodging.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—House Surgeon. Salary at rate of £75 per annum, with board, residence, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

EXMINSTER, DEVON COUNTY ASYLUM.—Third and Fourth Assistant Medical Officers. Salary £200 per annum, with board, laundry, and apartments.

GILBERT AND ELLICE ISLANDS PROTECTORATE, Western Pacific.—Medical Officer. Salary £350 per annum, free passage, and free quarters.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, London, N.—Honorary Medical Officer in charge of Electrical Department. Also House Surgeon for six months. Salary at rate of £40 per annum, with board, lodging, and laundry.

GREENWICH, DREADNOUGHT HOSPITAL.—Assistant Surgeon.

GRIMSBY AND DISTRICT HOSPITAL.—Senior House Surgeon and Junior House Surgeon. Salary £100 and £80 per annum respectively, with board, lodging, attendance, and washing.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

HITCHIN, THREE COUNTIES ASYLUM.—Junior Assistant Medical Officer. Salary £150 per annum, with board, apartments, washing, and attendance.

ITALIAN HOSPITAL, Queen-square, W.C.—House Surgeon for six months. Salary £60 per annum, with board and residence.

KENT EDUCATION COMMITTEE.—Medical Man for duties in connexion with Medical Inspection of School Children. Salary £250 per annum.

LANCASTER COUNTY ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, apartments, washing, and attendance.

LEEDS GENERAL INFIRMARY.—Honorary Surgeon. Also Assistant Honorary Surgeon.

LINCOLN MENTAL HOSPITAL, The Lawn, Lincoln.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, &c.

LIVERPOOL, PARK HILL SANATORIUM.—Assistant Resident Medical Officer, unmarried. Salary £150 per annum, with board, washing, and lodging.

LONDON HOSPITAL DENTAL SCHOOL.—Two House Surgeons.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120 per annum, with rooms, attendance, board, and washing.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Junior House Surgeon. Salary £100 per annum, with apartments and board.

MANCHESTER WORKHOUSE, Crumpsall.—Junior Resident Assistant Medical Officer, unmarried. Salary £110 per annum, with rations, apartments, fire, light, washing, and attendance.

NEWCASTLE-UPON-TYNE DISPENSARY.—Visiting Medical Assistants. Salary £200 per annum.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Medical Registrar.

NEW HOSPITAL FOR WOMEN.—Female House Physician, Two House Surgeons, Obstetric Assistant, and Assistant Pathologist, all for six months.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £180, with apartments, attendance, light, and fuel.

NOTTINGHAM GENERAL HOSPITAL.—Locum Tenens for 14 weeks. Salary £3 3s. per week, with board, residence, and laundry.

PAISLEY, ROYAL ALEXANDRA INFIRMARY, Barbour Park.—House Surgeon. Salary £80 per annum, with bed and board.

PETERBOROUGH INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, and laundry.

PORTSMOUTH WORKHOUSE INFIRMARY, WORKHOUSE, AND CHILDREN'S HOME.—First Assistant Resident Medical Officer and Second Assistant Resident Medical Officer, unmarried. Salary £150 and £130 per annum respectively, with apartments, rations, &c.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, &c.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Physician or Surgeon to the X Ray and Electrical Department. Also Clinical Assistants for six months.

READING, ROYAL BERKSHIRE HOSPITAL.—Second House Surgeon. Salary £30 per annum, with apartments, board, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, residence, washing, &c.

RICHMOND, SURREY, ROYAL HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with board, apartments, and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Professors and Lecturers. Also Election to the Court of Examiners.

ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum.

ST. ALBANS, HERTS COUNTY ASYLUM.—Locum Tenens Assistant Medical Officer. Salary 4 guineas a week, with board, lodging, and washing.

ST. ALBANS, MIDDLESEX COUNTY ASYLUM, Napsbury.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, washing, and attendance.

ST. GILES, CAMBERWELL INFIRMARY AND WORKHOUSE.—Second Assistant Medical Officer at the Infirmary, Brunswick-square, Camberwell, and Gordon-road Workhouse, Peckham. Salary £150 per annum, with apartments, board, and washing. Also Third Assistant Medical Officer at the Infirmary. Salary £140 per annum, with apartments, board, and washing.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, &c.

SAMARITAN FREE HOSPITAL FOR WOMEN.—Secretary. Salary £250 per annum.

SHEFFIELD, EAST END BRANCH OF THE CHILDREN'S HOSPITAL (OUT-PATIENT DEPARTMENT).—House Surgeon. Salary £75 per annum, with board and lodging.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £80 per annum, with rooms, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

STOKE-ON-TRENT INFECTIOUS DISEASES HOSPITAL, Bucknall.—Resident Assistant Medical Officer (female). Salary £100 per annum, with apartments, board, washing, and attendance.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY, Hartshill.—House Surgeon. Salary £100 per annum, with apartments, board, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £75 per annum, with board, washing, and attendance.

TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, unmarried. Salary £180 per annum, with apartments, board, washing, attendance, &c.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Locum Tenens for about ten weeks. Salary £3 3s. per week, with board, lodging, washing allowance, &c.

WAKEFIELD GENERAL HOSPITAL.—Second House Surgeon, unmarried. Salary £100 per annum, with board, lodgings, and washing.

WARRINGTON, COUNTY BOROUGH OF.—Assistant Medical Officer of Health. Salary £250 per annum.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Junior House Physician. Salary at rate of £75 per annum, with board, residence, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician for six months. Board, lodging, and laundry allowance provided.

WESTMINSTER HOSPITAL.—Resident Obstetric Assistant for six months. Board and lodging provided.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Fishguard, in the county of Pembroke; and at Muirkirk, in the county of Ayr.

THE Home Secretary gives notice that he proposes to appoint an additional Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 24, to be attached more particularly to the Cardiff and Barry County Courts.

Births, Marriages, and Deaths.

BIRTHS.

CUTLER.—On May 11th, at Kensington House, Pembroke Dock, the wife of F. J. Cutler, M.R.C.S., L.R.C.P., of a daughter.

DEATHS.

BARLOW.—On May 10th, at Dalston-lane, N.E., Thomas Carey Barlow, L.R.C.P., L.M., L.R.C.S., L.S.A., aged 60.

TYLER.—On May 12th, at 32, Cambridge-street, Hyde Park-square, W., Sir John William Tyler, C.I.E., late Inspector-General of Prisons, N.W.P. and Oudh, India, in his 74th year. Cremation at Golder's Green. Service at St. John's, Southwick-crescent, 2 o'clock Thursday. Indian papers, please copy. No flowers, by special request. Friends kindly accept this, the only intimation.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

FRENCH AND GERMAN PREPARATION OF ENGLISH MEDICAL MEN FOR THE INTERNATIONAL CONGRESS OF MEDICINE.

THE official languages for papers and discussions at the Congress being English, French, and German, many English practitioners who, while reading foreign medical literature with ease, may not have had opportunities of acquiring that knowledge of spoken French and German which is necessary for the appreciation of the various important points that will arise at the Congress, may be glad to learn of a scheme which is advertised in another part of THE LANCET. Mr. A. le Forestier is arranging a series of lectures on medical subjects to be delivered in French and German, which will be followed by discussions in those languages, and further particulars may be obtained from him at 20, Baker-street, London, W.

MOSQUITO DESTRUCTION.

MOSQUITOES, in the winter of cold countries, in the dry season in the tropics, find their energy much diminished and hide themselves in cellars or houses; then is the time to deal with them. Ross destroys them by oiling ponds and killing the larvæ (which are uninfected), and Steudel insists that it is even more important to kill the mosquitoes before they lay the eggs from which the larvæ will hatch out. Giemsa thinks it is even better to hunt them in the houses in the rainy season. Unless they are laying their eggs they get to cover in the houses which they haunt, seeking the blood that makes their eggs fertile, and at the same time becoming malarial infected, dang erous, and most suitable for slaughter. An attack upon them now will destroy a particularly high proportion of fertile infected females, and so will do the maximum of good. Giemsa (*Archiv für Schiffs- und Tropen-Hygiene*, March) notes that, little damaged as mosquitoes are by poisons touching their mouth apparatus, they easily succumb to suitable sprays which clog their tracheæ. The spray he recommends is tincture of pyrethrum (20 per cent. in methylated spirit) 54 per cent., soft soap 18 per cent., glycerine 24 per cent., for a stock solution. This, 1-20 in water, he sprays with a pressure spraying nozzle (a suction spray as in a perfume bottle weakens the solution too much). He works all over the room at 20 inches range, and repeats the process every week in the native houses, and thus he allows no infected female to escape at least one spraying during her incubation of the malarial parasite.

ECZEMA AND PREGNANCY.

To the Editor of THE LANCET.

SIR,—Is eczema in a pregnant woman likely to be followed by eczema in the child? A patient of mine, the mother of a large family, brings me her boy of 5 years, who always suffers from eczema. The mother attributes it to the fact that she was very bad with eczema during her pregnancy with him. None of the other children are affected, and she had no severe attack whilst carrying any of the others. I can find no reference to the matter. I am, Sir, yours faithfully,

Dublin, May 9th, 1913. J. C. MCWALTER, M.D.

"AN OFFERING TO THE GODS."

Captain W. Tarr, M.D., F.R.C.S. Edin., I.M.S., Khandwa, C.P., writes:—"On March 20th, at Mandhata, a holy place on the Nerbudda, Lachman, an ascetic, aged 45, went to the temple of Shiva, at which he had been a worshipper, put his left arm on the threshold, and with two blows of an axe severed the hand at the wrist; he then placed the hand before the idol and went to tell the priest; the latter applied an impromptu ligature round the forearm and brought him to hospital. He was quite happy, and said he had felt no pain. I found that the hand had been amputated by a clean cut through the wrist-joint, just removing the articular surface of the radius. I explained to him the necessity of a further operation, and proposed an anæsthetic; he refused chloroform, as he was quite confident he would feel no pain. I proceeded to clean up the arm and do the necessary operation, which, of course, included sawing through both bones, while he looked on in a calm and interested manner; it was quite evident that, for the time being, his sense of pain was in abeyance."

A TRAGEDY IN A PILL FACTORY.

THE imprudence of youth in the matter of dietetic excess is well known, but we do not remember to have heard of any previous case quite like that of Walter Langridge, aged 16, into the details of whose death a coroner's jury inquired on April 27th. This boy was employed in Bermondsey as a pill packer, and the evidence showed that in bravado he swallowed 40 or 50 pills. All the employees had, it seems, been warned against any such indiscretion, and the deceased himself was remonstrated with by a fellow employee without success. He was received into Guy's Hospital, where an alternative diagnosis of ptomaine poisoning was considered to be possible, but this was negatived by the post-mortem examination. The pills, according to the *Times*, contained aloes, podophyllin, henbane, hyoscyamus, and jalap, a somewhat formidable mixture, though precisely what the difference is between the third and the fourth of these ingredients the authorities at Printing House Square might find it difficult to say.

BED-BUGS AND PLAGUE.

ACCORDING to the *Report of the Bureau of Health for the Philippines* for the quarter ending Dec. 31st, 1912, plague was imported in 1912 after an absence of six years, but was promptly and successfully dealt with. An interesting point in this connexion is that 9 cases, all fatal, which occurred in Iloilo were confined to two houses, and as a rat campaign extending over three months failed to demonstrate any rat infection, it is suggested that bed-bugs may have been the conveyers of infection.

A WARNING.

A CORRESPONDENT informs us that a working man—brown hair, thick set, standing 6 feet in height, wearing a suit of dark material—is calling on medical men. When asked for his Insurance card he says he is not insured. He complains of his throat aching and that he has shivering attacks. In payment of the fee he places what appears to be half a sovereign on the writing-table. If any medical man is visited by this person he would do well to detain him and send for the police. He is wanted by the police at Willesden Green, N.W., for passing counterfeit coin.

E. A. C. T.—The preparation mentioned by our correspondent is quite good for the extermination of rats. It should be pointed out, however, that care must be taken to prevent its transference to any articles of food, since it is quite capable of producing infective gastro-enteritis in the human subject. As to where the rats deposit themselves to die, the pious hope of the originator of the virus is that they will be devoured by their nearest relatives, who in turn also succumb to the disease. In laboratory experiments only about 30 to 40 per cent. of rats are killed, so presumably the balance are well able to dispose of the dead bodies, but the preparation referred to is quite as good as any of the viruses on the market.

W. T. B.—It is the duty of the husband to give notice of the birth to the registrar. In default of the parents, it is the duty of the medical man, in common with other persons present at the birth, to report it to the registrar.

Mr. H. Hamilton-Hoare.—The character of the advertisement sufficiently explains why the advertiser's name is not in the Medical Directory.

A. R. C.—It is useless and dangerous to purchase such things except under medical advice and supervision.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 14th, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 8	29·65	S.E.	0·05	69	55	49	49	53	Overcast
,, 9	29·61	S.	0·09	81	56	50	50	53	Overcast
,, 10	29·75	S.W.	0·03	110	60	50	51	54	Cloudy
,, 11	29·83	S.W.	...	117	63	48	52	56	Cloudy
,, 12	29·99	S.E.	0·02	89	59	48	53	55	Cloudy
,, 13	30·07	S.E.	0·08	120	70	48	51	57	Cloudy
,, 14	30·13	N.E.	...	110	67	47	52	55	Cloudy

The following journals, magazines, &c., have been received:—Æsculape, American Journal of Medical Sciences, American Journal of Surgery, Annali dell' Istituto Maragliano, American Journal of Clinical Medicine, Archives de Médecine et Pharmacie Navales, Archiv für Schiffs- und Tropen-Hygiene, Maryland Medical Journal, Indian Medical Record, Calcutta Medical Journal, Indian Medical Journal, Guy's Hospital Gazette, Bulletin of the Johns Hopkins Hospital, Man, Archives of Pediatrics, International Journal of Surgery, Archives de Médecine et de Pharmacie Militaires, Die Therapie der Gegenwart, Monthly Cyclopedia and Medical Bulletin, Jahrbuch für Kinderheilkunde, Canadian Journal of Medicine and Surgery.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—4.30 P.M., Prof. Sir Joseph J. Thomson: Rays of Positive Electricity. (Bakerian Lecture.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY.

SECTION OF THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries: H. H. Dale, W. Langdon Brown): at 4.30 P.M.

Annual General Meeting—Election of Officers and Council for Session 1913-1914.

Paper:

Dr. Mervyn H. Gordon: Sensitised Vaccines.

SECTION OF BALNEOLOGY AND CLIMATOLOGY (Hon. Secretary—C. W. Buckley): at 5.30 P.M.

The Samuel Hyde Memorial Lectures:

Dr. William Gordon (Exeter): The Place of Climatology in Medicine.

Chairman: Sir Hermann Weber.

The Second Lecture will be given on the next day.

Members of all Sections are invited to attend these Lectures.

SECTION OF PATHOLOGY (Hon. Secretaries—H. R. Dean, Gordon W. Goodhart): at 8.30 P.M.

Laboratory Meeting at the Cancer Research Laboratories, Middlesex Hospital, W. (Entrance in Nassau-street.)

Dr. J. C. Mottram: The Vulnerability of the Cell to Radium in Relation to its Nuclear Division.

Dr. H. Beckton: (1) Radium Estimations in Normal Herrings; (2) Nature of the Change in Altmann's Granules in Malignant Disease.

Dr. Elizabeth Lepper: Observations on Altmann's Granules in Early Transplanted Mouse Tumours.

Dr. Helen Chambers: A New Spirochæta Found in Human Blood.

Dr. W. S. Lazarus-Barlow: Two Short Communications.

WEDNESDAY.

SECTION OF BALNEOLOGY AND CLIMATOLOGY (Hon. Secretary—C. W. Buckley): at 5.30 P.M.

The Samuel Hyde Memorial Lectures:

Second Lecture by Dr. William Gordon.

Chairman: Dr. I. Burney Yeo.

THURSDAY.

SECTION OF DERMATOLOGY (Hon. Secretaries—Wilfrid Fox, J. M. H. MacLeod): at 5 P.M.

Demonstration of Cases.

SECTION OF NEUROLOGY (Hon. Secretaries—Wilfred Harris, T. Grainger Stewart): at 8.30 P.M.

Annual General Meeting.—Election of Officers and Council for Session 1913-1914.

Clinical Evening.

Demonstration of Cases.

Members who wish to show cases are requested to send the notes to Dr. Grainger Stewart, 54, Queen Anne-street, W., at once.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—H. S. Clogg, F. Langmead, P. N. Blake-Odgers): at 4.30 P.M.

Annual General Meeting.—Election of Officers and Council for Session 1913-1914.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—G. S. Buchanan, William Butler): at 8.30 P.M.

Annual General Meeting—Election of Officers and Council for Session 1913-1914.

Paper:

Dr. F. W. Eurich: Anthrax in the Woollen Industry, with Special Reference to Bradford.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8 P.M., General Meeting—Election of Officers for 1913-14 Session, &c. 8.30 P.M., Discussion on a Clinical Study of the Chief Function of the Peritoneum (introduced by Mr. J. Howell). Followed by Dr. A. E. Russell, Mr. P. W. G. Sargent, Dr. L. S. Dudgeon, and others.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY.—4.30 P.M., Demonstration of Pathological Specimens. Cases sent for Consultation. Demonstration of Clinical Cases by Dr. Dockrell, Dr. Bunch, Dr. Sibley, Dr. Phibbs, and Dr. Griffith. 5.15 P.M., Discussion on Electricity in Some Diseases of the Skin (opened by Dr. F. H. Humphris).

UNITED SERVICES MEDICAL SOCIETY, Royal Army Medical College, Grosvenor-road, S.W.

WEDNESDAY.—5 P.M., Major E. B. Waggett, R.A.M.C.(T): The Medical Problems of Mobilization of the Territorial Force.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Exhibition of Aquatic Life by Fellows of the Society and Members of the Quekett Microscopical Club.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. MacCormac: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. L. Bunch: Some Common Skin Diseases and their Treatment.

TUESDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Dr. J. Donelan: Some Common Throat and Nose Disorders.

WEDNESDAY.—4 P.M., Mr. J. T. Walker: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. A. Evans: Surgery of the Thorax.

THURSDAY.—4 P.M., Dr. R. C. Jewesbury: Clinique (Medical). 5.15 P.M., Lecture:—Dr. W. Ewart: Artificial Pneumothorax—and After? The Mechanical Factor and Unilateral Breathing and Some Practical Points in Phthisis.

FRIDAY.—4 P.M., Mr. E. B. Waggett: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Bernstein: Blood.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Diseases of the Skin. 5 P.M., Lecture:—Dr. Bernstein: Blood.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 11 A.M., Mr. Souttar: Demonstration of Minor Operations. 12 noon, Mr. Souttar: Abdominal Diagnosis. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Bernstein: Blood.

THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 12.15 P.M., Lecture:—Dr. G. Stewart: Neurological Cases. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. Davis: Suppuration in the Nasal Accessory Sinuses.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Lecture:—Dr. Owen: Practical Medicine. 12.15 P.M., Lecture:—Dr. Bernstein: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Diseases of the Skin. 5 P.M., Lecture:—Dr. Davis: Suppuration in the Nasal Accessory Sinuses.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. Souttar: Surgical Anatomy of the Abdomen. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.30 P.M., Special Lecture:—Mr. A. Carless: Ventral Hernia.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. Dr. A. Davies: Pathological Demonstration. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. 3.15 P.M., Dr. R. Wells: Medicine. 4.30 P.M., Special Lecture:—Prof. R. T. Hewlett: Methods employed in the Investigation of Tuberculosis.

FRIDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Sir John Rose Bradford; Medicine. 3.15 P.M., Mr. L. McGavin: Surgery.

SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Surgical. 11 A.M., Mr. R. B. Bickerton: Eye.—10 A.M., Radiography.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patient (Mr. R. Gillespie). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. D. Gillies). 3 P.M., Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

TUESDAY.—Clinic; 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. Howell Evans); Gynæcological (Dr. A. B. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2 P.M., Throat Operations (Mr. Gillies). 2.30 P.M., Children's Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Mr. W. Steuart); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan). 5.30 P.M., Eye Operations (Mr. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie); Clinical Pathology and Pathological Demonstration (Dr. W. H. Duncan).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4.30 P.M., Lecture:—Dr. Wethered: Tuberculin in the Treatment of Febrile Cases of Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. R Russell: Paraplegia.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. H. Tooth.

QUEEN'S HOSPITAL FOR CHILDREN, Board Room of the Hospital, Hackney-road, N.E.
THURSDAY.—4 P.M., Dr. J. P. Parkinson: Difficulties in Diagnosis in Disease in Children.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.
THURSDAY.—6 P.M., Dr. M. Dockrell: The Papular Diseases of the Skin, their Diagnosis (Clinical and Histological), with the Treatment of Each.

ANCOATS HOSPITAL, Manchester.
THURSDAY.—4.15 P.M., Dr. D. E. Core: Some Points in Heart Disease. (Post-Graduate Clinic.)

ROTUNDA HOSPITAL POST-GRADUATE COURSES, Dublin.
MONDAY.—10 A.M., Obstetrical Lecture: The Induction of Labour. 11 A.M., Examination of Patients and Minor Operaitons.
TUESDAY.—10 A.M., Major Operations. 4 P.M., Class in Gynæcological Diagnosis.
WEDNESDAY.—10 A.M., Obstetrical Lecture. 11 A.M., Examination of Patients and Minor Operations.
THURSDAY.—10 A.M., Major Operations.
FRIDAY.—10 A.M., Gynæcological Lecture: Pelvic Infection. 11 A.M., Examination of Patients and Minor Operations. 4 P.M., Class in Gynæcological Diagnosis.

For further particulars of the above Lectures, &c., see Advertisement Pages.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1913:—

April 26th-Nov. 5th (Ghent).—International Exhibition.
May 14th-17th (Halle a-S.).—Fifteenth Meeting of the German Gynæcological Society.
„ 15th-18th (Paris).—Twenty-first Annual Congress of the Royal Institute of Public Health.
„ 16th-31st (London, Holland Park Rink).—National Health Exhibition.
„ 22nd-June 7th (London, Olympia).—Royal Naval and Military Tournament.
May-October (Leipzig).—First International Building Exhibition.
„ June 11th (opens) (London, Crystal Palace).—Anglo-German Exhibition.
„ 16th and 17th (Minneapolis).—Fifteenth Annual Meeting of the American Proctologic Society.
„ 17th-20th (Minneapolis).—American Medical Association.
„ 24th-27th (London, Ontario).—Canadian Medical Association.
„ 26th-28th (Oxford).—Fourth Annual Conference of the British Hospitals Association.
„ 30th and July 1st (London, Guildhall).—Conference on Diet, Cookery, and Hygiene in Elementary Schools and Institutions.
July 7th-12th (Exeter).—Twenty-eighth Congress of the Royal Sanitary Institute.
„ 16th-18th (Oxford, Keble College).—Oxford Ophthalmological Congress.
„ 21st-24th (London).—British Pharmaceutical Conference.
„ 22nd-25th (Brighton).—Eighty-first Annual Meeting of the British Medical Association.
Aug. 1st-3rd (Ghent).—Congress against the Adulteration and Deterioration of Foodstuffs.
„ 1st-5th (Brussels).—Third International Conference on Cancer.
„ 3rd-8th (London).—Sixth International Dental Congress.
„ 4th and 5th (London, Caxton Hall).—English-speaking Conference on Infant Mortality.
„ 6th-12th.—(London).—Seventeenth International Congress of Medicine.
„ 20th-26th (Ghent).—Third International Congress of Neurology and Psychiatry.
„ 25th-30th (Buffalo).—Fourth International Congress of School Hygiene.
Sept. 2nd-6th (Groningen).—International Physiological Congress.
„ 9th-13th (Vienna).—Second International Congress of Life Saving and Prevention of Accidents.
„ 10th-17th (Birmingham).—British Association.
„ 21st-26th (Vienna).—Eighty-fifth Meeting of German Natural Philosophers and Physicians.
„ 22nd-28th (Milan).—Fourteenth International Anti-alcoholic Congress.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(London, Earl's Court).—Imperial Services Exhibition.
(Chicago).—Congress of the International Association of Refrigeration.
(Washington).—Congress of American Physicians and Surgeons.

In 1914:—

May 1st-Nov. 1st (Lyons).—International Town Life Exhibition.
Aug. 10th-15th (St. Petersburg).—Twelfth International Congress of Ophthalmology.
(London).—Anglo-American Exhibition.
(Vienna).—Third International Congress for Professional Diseases.
(Auckland, N.Z.).—Australasian Medical Congress.
(St. Petersburg).—Third Mendeléeff Congress of Pure and Applied Chemistry and Physics.
(Washington, D.C.).—International Congress of Americanists.
(Paris).—Fourth International Medical Congress on Industrial Accidents.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—MESSRS. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Messrs. Armour and Co., Lond.; Anglo-American Pharmaceutical Co., Lond.; Alnwick Infirmary, Hon. Secretary of; Atlas Non-puncture Inner Case Syndicate, Lond.; Mr. E. Arnold, Lond.; Mr. F. Aldridge, Lond.; Aberdeen, Medical Officer of Health of; Asylum Workers' Association, Lond., Hon. Secretary of; Æolian Hall, Lond., Manager of; Mr. Charles E. Adams, Spokane.

B.—Messrs. T. B. Browne, Glasgow; Messrs. Burroughs, Wellcome, and Co., Lond.; Messrs. Baillière, Tindall, and Cox, Lond.; Birmingham Corporation, Medical Officer of Health to the; Birkenhead and Wirral Children's Hospital, Secretary of; Baylor University, Dallas, U.S.A., Registrar of; Dr. H. Lee Barnes, Wallum Lake; Bridlington, Medical Officer of Health of; Mr. Clark Bell, New York; Mr. J. F. Briscoe, Alton; Mr. W. T. Barns, Carlisle; Mr. Robert M. Byers, New York; Mr. Francis Brook, Lond.

C.—Canterbury Borough Asylum, Medical Superintendent of; Camberwell Guardians, Clerk to the; Mr. H. A. Collins, Croydon; Cambridge University, Secretary of; Calcutta Corporation, Secretary of; Dr. H. W. Crowe, Yelverton; Chelsea Clinical Society, Lond., Hon. Secretaries of; Mr. Thomas P. Codd, Lond.; Mr. A. Rogers Connop, Leominster; Dr. Carron de la Carrière, Paris.

D.—Dorland Agency, Lond.; Devon County Asylum, Exminster, Clerk to the; Denbighshire Infirmary, Denbigh, Secretary of; Dr. Thomas W. Dewar, Dunblane; Dr. Dubruel de Broglio, Rochefort-sur-Mer; Lieutenant-Colonel A. M. Davies, R.A.M.C., Eltham; The Drama League, Lond.; Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten, Berlin, Vorstand der; Dr. Thomas Dutton, Lond.

E.—Electrical Engineering and Equipment Co., Lond.; Dr. William Ewart, Lond.; Captain E. H. Edwards, R.N., Lond.; East End Mothers' Lying-in Home, Secretary of.

F.—Mr. A. Le Forestier, Lond.; Messrs. Fannin and Co., Dublin; Factories, Chief Inspector of, Lond.; Miss A. Fulcher, Lond.; Factory Girls' Country Holiday Fund, Lond.

G.—Messrs. Gordon and Gotch, Lond.; Messrs. Grantham and Co., Reading; Glasgow University Club, Lond., Hon. Secretary of; Guy's Hospital Medical School, Lond., Dean of.

H.—Dr. E. L. Hunt, Lond.; Mr. C. A. Hoefftcke, Lond.; Dr. F. de Havilland Hall, Lond.; Mr. C. W. Hutt, Brighton; Mr. F. J. Hyam, Lond.; Dr. Francis Hare, Beckenham Park; Dr. John Henderson, Glasgow; Hetton-le-Hole, Medical Officer of Health of; Mr. H. W. Hamilton-Hoare, Lond.; Hospital for Consumption and Diseases of the Chest, Lond., Dean of; Dr. Jobson Horne, Lond.; Harveian Society of London, Hon. Secretary of.

I.—Ilkley Urban District, Medical Officer of Health of.

J.—Mr. R. A. Jones, Liverpool.

K.—Messrs. R. A. Knight and Co., Lond.; Messrs. G. Kelly and Co., Lond.; Kent Education Committee, Lond., Secretary of; Kent and Canterbury Hospital, Secretary of; Kensington, Medical Officer of Health of.

L.—Dr. J. Lambie, Mansfield; Loughborough and District General Hospital, Secretary of; Lady Margaret Lying-in Homes, Bromley, Secretary of; Leeds General Infirmary, Manager of; Mr. H. K. Lewis, Lond.; Professor Sir E. Ray Lankester, Bournemouth; Lincoln Memorial Hospital, Knoxville, U.S.A.; Mr. T. Pagan Lowe, Lond.; Dr. R. Murray Leslie, Lond.; Dr. S. Lilienstein, Bad Nauheim; London and Counties Medical Protection Society. General Secretary of; Mr R. Lake, Lond

M.—Messrs. D. T. McAinsh and Co., Toronto; Mr. G. H. Makins, Lond.; Manchester Northern Hospital for Women and Children, Secretary of; Medical Supply Association, Lond.; Manchester Guardians, Clerk to the; Maltine Manufacturing Co., Lond.; Mr. R. Mosse, Berlin; Messrs. Maurice and Co., Lond.; Messrs. Müller and Steinicke, Munich; Dr. J. C. McWalter, Dublin; Dr. Edward M. Merrins, Wuchang; Thomas McLean's Gallery, Lond.; Mr. Allen E. Mahood, Boscombe; Mr. H. Leslie Murray, Liverpool; Medico-Psychological Association of Great Britain and Ireland, Lond.; Medical Defence Union, Lond.; Dr. James Melvin, Rochdale; Medico-Legal Society, Lond.

N.—Mr. M. Nicoll, Lond.; North Staffordshire Infirmary, Hartshill, Secretary of; New York Pharmaceutical Co., Bedford Springs, U.S.A.; National Health Insurance Commissioners, Lond., Secretary to; Dr. Howard W. Nowell, Boston.

O.—Dr. J. O'Conor, Buenos Aires; Messrs. Oliphant, Anderson, and Ferrier, Lond.

P.—Messrs. Peacock and Hadley, Lond.; Mr. F. H. Preston, Lond.; Portsmouth Guardians, Clerk to the; Dr. D. Wells Patterson, Newcastle-on-Tyne; Dr. L. A. Parry, Brighton; Mr. Stephen Paget, Lond.; Dr. W. Preston-Hillary, Lond.; Dr. R. H. Paramore, Lond.; Mr. L. T. Poole, York.

R.—Royal College of Surgeons of England, Lond., Secretary of; Royal Halifax Infirmary, Secretary of; Royal Hampshire County Hospital, Winchester, Secretary of; Royal Institute of Public Health, Lond., Hon. Secretary of; Royal Cornwall Infirmary, Truro, Secretary of; Messrs. Robertson and Scott, Edinburgh; Royal Victoria Infirmary, Newcastle-on-Tyne, Secretary of; Dr. H. Rischbieth, Adelaide, S.A.; Royal Microscopical Society, Lond., Secretary of; Royal Mail Steam Packet Co., Lond., Secretary of; Royal Society, Lond., Assistant Secretary of; Royal Meteorological Society, Lond.; Royal College of Surgeons of England, Lond., President of, and Lady Godlee.

S.—Stoke-on-Trent and Stoke Rural Joint Hospital Board, Clerk to the; Swansea General and Eye Hospital, Secretary of; Sheffield Royal Hospital, Secretary of; Messrs. G. Street and Co., Lond.; *St. Neots Advertiser*, Manager of; Society of Chemical Industry in Basle, Lond.; Sheffield Royal Infirmary, Secretary of; Messrs. Sansom Bros. and Co., Mansfield; Dr. Julius Springer, Berlin; Dr. Agnes Savill, Lond.; Professor W. Stirling, Manchester; Mr. Herbert Shore, Lond.; Society for the Relief of Widows and Orphans of Medical Men, Secretary of; Scientific Press, Lond., Mr. R. B. Sargeant, Lond.; Mr. Sydney Smith, Lond.; Messrs. R. Sumner and Co., Liverpool; Messrs. Spiers and Pond, Lond.; Messrs. Smith and Gill, Sheffield; Dr. Frank Shufflebotham, Lond.

T.—Dr. H. H. Taylor, Bromley; Captain W. Tarr, I.M.S., Khandwa; Mr. C. J. S. Thompson, Lond.

U.—University of London Press, Lond.

V.—Messrs. J. W. Vickers and Co., Lond.; Dr. G. Valenti, Campello; Dr. J. C. Voigt, Southport.

W.—Wolverhampton General Hospital, Secretary of; Woodhall Spa Co., Secretary of; Westinghouse Cooper Hewitt Co., Lond.; Wakefield General Hospital, Hon. Secretary of; Messrs. Ward, Lond.; Warrington Corporation, Clerk to the; Dr. C. Wall, Lond.; Dr. J. T. Ainslie Walker, New York; Dr. A. D. Waller, Lond.; W. C. G.; West London Hospital Post-Graduate College, Staff of; Dr. Arthur J. Whiting, Lond.; Dr. Royal Whitman, New York.

Y.—Y.M.C.A., Lond., Secretary of

Letters, each with enclosure, are also acknowledged from—

A.—Dr. C. M. Allan, Longton; Allen Advertising Agency, New York; Ashbrook Hall, Hollington, Licensee of; Dr. E. L. Ash, Lond.; Army and Navy Male Nurses' Co-operation, Lond., Secretary of.

B.—Bury Infirmary, Secretary of; Mr. W. G. Burcombe, Lincoln; Birmingham Corporation, Treasurer to the; Banco Español del Rio de la Plata, Lond., Manager of; Birkenhead Borough Hospital, Secretary of; Messrs. Blatchley and Ashwell, Lond.; Bolingbroke Hospital, Lond., Secretary of; Bedford County Hospital, Secretary of; Dr. T. W. Beazeley, Stechford; Mr. W. H. Barrett, Chichester; British Diamalt Co., Lond.; Dr. W. Blair Bell, Liverpool; Dr. D. Bower, Bedford.

C.—Dr. R. Chalmers, Swabue; Mr. H. J. A. Campbell, Jersey; C. J. J. H.

D.—Mr. J. T. Davenport, Lond.; Messrs. Dawson and Sons, Lond.; Durham County Council, Durham, Accountant to the; David Lewis Northern Hospital, Liverpool, Secretary of; Devonshire Hospital, Buxton, Secretary of.

F.—Dr. C. E. Finlay, Havana; Dr. H. P. Fairlie, Glasgow; Farnham House, Finglas, Medical Superintendent of; Messrs. J. S. Fry and Sons, Bristol; Dr. L. Findlay, Glasgow; Dr. T. Forrest, Bury St. Edmunds

G.—Miss Gurney, Newcastle-on-Tyne; Grimsby and District Hospital, Secretary of; G. T.; Mr. J. F. Gell, Nottingham.

H.—Dr. S. H. Habershon, Lond.; Horton Infirmary, Banbury, Secretary of.

J.—Dr. J. Jackson, Shanghai; Mr. A. L. Jenkins, Pontlottyn; Messrs. Judd, Lond.

K.—King Edward VII. Welsh National Memorial Association, Newtown, Secretary of; Mr. T. S. Keys, Lond.

L.—Mr. T. S. Logan, Stone; Mr. L. T. Leslie, Evesham; Messrs. Lee and Nightingale, Liverpool.

M.—Matthew's Advertising Service, Lond.; Mr. R. More, Glasgow; Mr. A. Maude, Westerham; Messrs. Menzies and Co., Edinburgh; Mrs. Morison, Lond.; Messrs. May, Roberts, and Co., Lond.; Medicus, Liverpool; Messrs. W. Martin, Clarke, and Co., Lond.

N.—North Riding Infirmary, Middlesbrough, Secretary of; Norwood Sanatorium, Beckenham, Secretary of; Neath, &c., Medical Aid Association, Secretary of; Noble's Isle of Man Hospital, Douglas, Secretary of; Rev. J. E. Newby, Pilton.

O.—Mr. C. A. P. Osburne, Old Catton; Dr. G. Olano, Lima.

P.—Dr. M. Pfister, Heidelberg; Dr. T. W. Parkinson, Lond.; Lieutenant L. T. Poole, R.A.M.C., York; Pharmaceutical Society of Great Britain, Secretary of; Poplar Borough Dispensary, Lond., Chairman of; Private Maternity Home, Hove.

Q.—Queen's Hospital, Birmingham, Secretary of; Q., Regina-road, N.W.

R.—Royal South Hants and Southampton Hospital, Secretary of; Rotherham Hospital, Secretary of; R. H. N. R.; Miss Rattray, Haslemere; R. T.

S.—Dr. C. S. de Segundo, Lond.; Messrs. Smith and Son, York; Smedley's Hydropathic Co., Matlock, Secretary of; Dr. H. Spitta, Lond.; Captain J. M. Skinner, I.M.S., Berhampore; Messrs. Siegle and Co., Lond.; Mr. C. A. Savari Rayan, Nandigama; Sunderland Royal Infirmary, Secretary of; S. A. M.

T.—Dr. Takayasu, Osaka; Mr. C. E. Thwaites, Limber Magna.

V.—Dr. J. F. de Villiers, Vrede.

W.—Dr. T. Wholey, Pevensey; Walsall and District Hospital, Secretary of; Dr. J. R. Whait, Lond.; Mr. A. R. A. Wilhelm, Barkly East; Dr. P. Warner, Woodford Green; Mr. G. Watson, Ipswich; Warwick County Council, Accountant to the.

Y.—Yost Typewriter Co., Lond.

EVERY FRIDAY.

THE LANCET.

PRICE SIXPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.*		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

* *The same rate applies to Medical Subordinates in India.*

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications	Five Lines and under £0 4 0
Official and General Announcements	
Trade and Miscellaneous Advertisements and Situations Vacant ...	Every additional Line 0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.
Special Terms for Position Pages.

Cheques and Post Office Orders (crossed "London County & Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD. THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.
THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.